A Paper
ON
TRAUMATIC TUBERCULOSIS, TRAUMATIC PNEUMONIA, AND TRAUMATIC PLEURISY.*

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TRAUMATIC TUBERCULOSIS.

PATHOLOGICALLY, it would doubtless be correct to assert that many cases of local or disseminated tuberculosis in the development of which traumatism has been alleged to play a more or less important part have not been examples of "traumatic tuberculosis" at all (the evolution of the disease having been quite independent of, and uninfluenced by, the trauma in question), and that all real "traumatic tuberculosis" (excepting that due to direct inoculation—see later) may be explained as tuberculosis which, as the result of a trauma, has been converted from a "latent" case—that is to say, one in which symptoms either did not exist or were not noticed—into a case with sufficient symptoms to render a diagnosis possible.† Clinically, cases of alleged traumatic tuberculosis may be divided into those due to direct inoculation from cuts, etc., and those due to injuries by which tubercle bacilli could not have been introduced from without.

Traumatic Tuberculosis from Direct Inoculation.

Examples of this are nearly all superficial, and include tuberculous warts (lupus verrucosus), "necropsy tubercles," and other forms of superficial tuberculosis, such as may be acquired by pathologists and *post-mortem* room assistants in making necropsies on tuberculous subjects (as some of us doubtless have had the opportunity of observing in our own persons), and by butchers, etc., from tuberculous cattle. Similarly tuberculosis may be inoculated by the accidental breaking of a glass or porcelain spittoon containing tuberculous sputum, if the latter contaminates the wounds made by the sharp fragments of the broken vessel. Some rare cases may be explained as an infection from the mouth of a tuberculous individual, who has either applied his lips to the wound or to the instruments or ligatures used at operations (tattooing, circumcision). Such inoculation of wounds is, however, not what is generally meant by the term "traumatic tuberculosis," and I do not propose to consider it further in this place.

Alleged Traumatic Tuberculosis due to Injuries by which Tubercle Bacilli could not have been Introduced from Without.

Cases of this kind may be clinically divided into the following three groups:

(A) Cases in which a decided traumatism of some kind is followed by signs of either acute disseminated miliary tuberculosis or acute metastatic localized tuberculosis.

(B) Cases in which signs of pulmonary tuberculosis follow (or are first noticed) after a supposed injury to the lungs.

(C) Cases in which an injury to bones or joints or parts of the body other than the lungs is followed by signs of tuberculosis more or less localized to the region of the trauma.

(A) *Miliary Tuberculosis.*

The first group includes cases, fortunately rather rare, which run an acute and often very "dramatic" course. A person (usually a young person) apparently in blooming health, may receive a chance blow or contusion of some kind and die in four or five weeks of acute miliary tuberculosis.

A well-built man, a German, aged 33 years, was admitted under my care at the German Hospital on April 5th, 1897. He had fever (temperature 103.6° F.), vomiting, great dyspnoea and cyanosis, intense dryness of the throat, and scanty expectoration in which a trace of altered blood pigment was at one time visible. On examining the lungs no definite signs of consolidation could be made out, but a certain amount of fine inspiratory crepitation was heard over both sides, and the case seemed to be one of acute double pneumonia before the outer parts of either lung had become hepatized. The history was that ten days before admission, when on board ship on his way back from the Transvaal, he received a blow on the left testis which was followed by local and general symptoms. After five days his condition improved somewhat, but two days previously to admission he had a rigor and pains over the whole of the body. Except for some slight improvement soon after admission, due to rest and cessation of the vomiting, his condition underwent but little change. The dyspnoea and orthopnoea increased and the fever remained continuous till he died, practically suffocated, on April 20th, about twenty-five days after receiving the blow on the testicle. In the meantime, owing to the absence of any crisis, and since there were no signs of definite hepatization of the lungs, we had come to suspect that the pulmonary disease was one of acute miliary tuberculosis. The crepitations were variable; on one occasion distinct inspiratory crepitations could be heard below both clavicles. The sputum was examined for tubercle bacilli with negative results. The urine contained a little albumen.

At the necropsy both lungs were found to be engorged with blood and absolutely stuffed with miliary tubercles. There was some fibrosis from earlier disease at both pulmonary apices. The bronchial lymph glands were enlarged, and besides miliary tubercles in the pleurae there was evidence of older pleurisy, especially over one lung. The left epididymis (that is, where he had received the blow twenty-five days before his death) contained a softened, caseous nodule, smaller than a small cherry. The cerebral meninges contained no tubercles, nor were tubercles found in any other organs, except a few minute ones in the renal cortex below the capsule. The liver might, of course, have contained microscopic tubercles though no macroscopic ones were found. The heart was distended with blood, but showed no evidence of disease. The spleen was somewhat enlarged and pulpy; it weighed 9 oz., and contained one small white infarct.

In this case, apparently, the tubercle bacilli were by the injury set free from the caseous focus in the epididymis, and were carried by the venous blood to the right heart. Many of the bacilli were then caught up in their passage through the lungs, and thus gave rise to the miliary pulmonary tuberculosis. This theory explains why the pulmonary tubercles were practically all of about the same size, why they were uniformly distributed throughout every part of the lungs, and why there was not evidence of general miliary tuberculosis in other parts of the body. A few of the microbes had, however, passed through the pulmonary circulation, otherwise we should have found no miliary tubercles in the kidney. Moreover, by careful microscopic examination we might have found evidence of commencing tubercles in other organs. Tubercle bacilli are supposed not to produce anatomical changes until nine to sixteen days after injection or after entering the blood stream. This would correspond, I think, to what was found in the lungs at the necropsy, but in order to understand the whole case one must, I think, assume that the patient's condition at the time of injury was abnormal, namely, that there was something peculiar about his blood and tissues, at all events about his lungs, which favoured the rapid multiplication of the tubercle bacilli set free from the caseous focus in the epididymis.‡

Similar cases were observed prior to the discovery of the tubercle bacillus and gave rise to various inquiries as to the possible relation between the injury and the lung disease. A remarkable example was the following, which I have from my father, and which occurred in Germany long ago.

An apparently healthy student, about 21 years of age, received some injury to one of his ankle-joints. Shortly afterwards he fell ill with an acute pulmonary affection, characterized by frightful dyspnoea and cyanosis, and, like the previously mentioned patient, died practically from suffocation about twenty-five days after the injury to his ankle. At the necropsy both the lungs were shown to be completely stuffed with miliary tubercles.§ and in the ankle some caseous material was found. It was known that during childhood the patient had suffered from a disease of his ankle.

Other examples, though not all quite so typical as the two foregoing, cannot, I think, be excessively rare—that is, cases in which acute miliary tuberculosis of the lungs is set up by injury to some part of the body which

* Read at the Assurance Medical Officers' Association, May 4th, 1910.

† Cf. R. Stern, *Ueber die traumatische Entstehung innerer Krankheiten* Jena, 1896 (with analysis of published cases); also A. Ascarelli, *Policlinico*, Rome, 1907, vol. xiv (Sezione pratica), p. 1025, and the papers of Honsell and Jordan, to which I shall refer later on.

‡ Cf. O. R. Wild, Ueber die Entstehung der Miliartuberculose, *Virchow's Archiv*, 1897, vol. cxlix, p. 65; and H. Ribbert, Ueber die Miliartuberculose. *Deut. med. Woch.*, 1906, vol. xxxii, p. 5.

§ It is possible that the reason why this cramming of the lungs with tubercles is better seen in adults than in very early life is a mechanical one, and that it has to do with more elaborate development of the capillary network in adult age.

happens to be the site of previous tuberculous disease. The wonder is that such cases are not more often observed. I have heard of a case of miliary tuberculosis of the lungs, as rapidly fatal as the case just referred to, following an attempt to break down adhesions in an old tuberculous joint, and I have been told also of a child about 9 years of age who died with general disseminated tuberculosis three or four weeks after an operation on a tuberculous joint. J. Orth[1] refers to surgeons losing patients from fatal acute tuberculosis after operations on chronic localized tuberculous lesions (in bones) in which it might have been difficult to detect the presence of any bacilli. A striking example of the kind is related by Urban.[2]

A healthy-looking girl, aged 19 years, who, on account of adduction from old hip disease of the right side, wished to have a "bloodless" manipulation performed to improve the position of the hip-joint. The surgeon who was consulted yielded, against his own inclinations, to the importunity of the patient and her parents. By manipulation under general anaesthesia the faulty adduction was corrected, but on the following day the patient's temperature rose to 104° F., and in five weeks she died of acute miliary tuberculosis. No old tuberculous lesions were discovered at the necropsy excepting those of the right hip-joint. To explain this case Urban mentions that of a boy aged 12 years, whose knee-joint was ankylosed in a flexed position as a result of old local tuberculosis, supposed to have been cured five or six years ago. The joint was resected, and was found to contain a single encapsuled caseous focus of the size of a pea; a guinea-pig, inoculated with this, died of tuberculosis in three and a half weeks after the inoculation. Had a bloodless manipulation been carried out, instead of the "open" resection of the joint, the boy might have fallen a victim to acute miliary tuberculosis as a result of tearing or crushing of the minute caseous focus in question.

From the pathological point of view, certain cases of death from acute miliary tuberculosis (especially of the lungs) a few weeks after childbirth or abortion may be compared with the preceding cases. F. Weil[3] describes two such cases in young women who died almost exactly four weeks after abortion. In both cases the miliary tuberculosis affected the lungs chiefly, and the necropsy showed the presence of earlier tuberculous caseous foci in the pelvic organs. Weil thinks that in both cases the uterine tuberculosis was the cause of the abortion, and the open blood vessels of the uterus constituted the channel by which the rest of the body, especially the lungs, was "flooded" with tubercle bacilli. He refers to similar cases described by Fischel (1883), Schelling (1885), Hünermann (1893), Davidsohn (1899), and Westenhoeffer (1903). An analogous case is recorded by Hochhaus,[4] in which the patient, a young woman aged 22 years, died forty-seven days after abortion. The necropsy showed the presence of a caseous focus in the uterus, and disseminated miliary tuberculosis of the lungs, peritoneum, etc.

Dr. C. T. Williams[5] refers to the case of a gentleman who was thrown in the hunting field; several of his ribs were injured; acute miliary tuberculosis followed, and proved rapidly fatal. The cases in which a thoracic injury is followed at first by local pulmonary signs and much later by miliary tuberculosis really belong to Group B.

In this connexion also mention may be made of the case of an unmarried woman, aged 31 years, who had a small tuberculous gland removed from the neck. Some months later she appeared to be suffering from pneumonia, but very soon this was found to be an acute attack of pulmonary tuberculosis, from which she died after an illness of three weeks.[6] Two girls, one aged 5 years and the other aged 14 months, died within a month of undergoing laryngeal intubation for diphtheria, and at the *post-mortem* examination in both cases a caseous mass was found in the larynx together with the lesions of acute miliary tuberculosis.[7] In a man, aged 62 years, according to the account of Aufrecht,[8] a tuberculous pneumonia supposed to be of embolic origin supervened after massage of some old tuberculous lymphatic glands in the neck. In another case an injury to the calf muscles led to local venous thrombosis and pulmonary embolism, followed by pulmonary tuberculosis.*

Benda,† in three cases of miliary tuberculosis following operation or injuries to tuberculous joints and bones, found that tuberculosis of blood vessels existed. He believes that at the operation or injury a few bacilli pass into the blood stream and lodge on the tunica intima of a blood vessel. In the intima a tubercle then develops, becomes caseous, and finally ruptures, liberating into the circulating blood great numbers of tubercle bacilli, which are thus distributed throughout the body, and give rise to general miliary tuberculosis. H. Ribbert[9] thinks that in such cases the blood stream is not, as Weigert[10] believed, all at once, so to speak, "flooded" with tubercle bacilli. From the results of his microscopical investigations he is inclined to suppose that relatively small numbers of bacilli reach the circulating blood at a time, but that these bacilli are able to multiply quickly, apparently because the patient is in some way "predisposed," and his tissues prove a favourable soil for the bacillary growth. "Spontaneous" disseminated miliary tuberculosis may, of course, result from rupture of tubercles into the lumen of arteries, veins, or the thoracic duct, but Huguenin,[11] when he insists that in such cases the veins in the lungs are the usual sites for the irruption of tubercle bacilli into the blood stream, has great probability on his side.

(B) *Pulmonary Tuberculosis.*

Cases are certainly occasionally observed in which an injury to the thorax is followed after an interval by active signs of pulmonary tuberculosis. One can readily conceive that a "contusional injury" to the thorax—for example, a blow with a blunt instrument or some violent compression—might bruise or otherwise damage the lung, and so lower its resistance as to give rise to a pneumonia or other infection, if the specific cause of such an infection happens to be forthcoming. That contusions of the thorax may actually injure the lungs and pleura has been well demonstrated by Külbs in his experimental investigations in animals, to which I shall refer later on.

By a contusional injury of that kind a latent tuberculous focus (and experience from *post-mortem* examinations shows how frequently latent tuberculous lesions are present in the lungs and thoracic lymph glands of apparently healthy individuals ‡) may be squeezed or torn in such a way that tubercle bacilli are mechanically disseminated over the neighbouring lung tissue, the vitality of which is moreover temporarily lowered by the injury so as to render it a favourable nidus for the growth of the bacilli. In a case recorded by O. Schrader[12] the patient, an apparently healthy man, aged 29 years, was admitted to a hospital two days after an injury to his thorax, and in due course the diagnosis arrived at was pneumonia of the lower and middle lobes of the right lung. But thirteen days after the accident tubercle bacilli were found in the sputum, and Schrader discusses the question whether the tuberculosis was engrafted on a "contusional pneumonia" (see later portion) or whether the lung disease was a tuberculous bronchopneumonia from the commencement. Great improvement in the patient's condition subsequently took place. C. Theodore Williams[13] has recorded the similar case of a mate of a merchant vessel who fell from the mast to the deck and fractured

* F. Köhler, *Aerztl. Sachverst.-Zeitung*, Berlin, 1908, vol. xiv, p. 154. Köhler (ibid., p. 32) has likewise recorded a curious case of pulmonary tuberculosis developing after an injury to the skull.

† Benda, *Verhandlungen d. deut. Gesellschaft für Chirurgie*, 1899, vol. xxviii, Part I, p. 48. Cf. also W. T. Longcope's description of a case of tuberculosis of the aorta in a child with general miliary tuberculosis, *Johns Hopkins Hospital Bulletin*, 1901, vol. xii, p. 27; H. Toyosumi, "Intimatuberkel in den kleinen Lungenarterien," *Virchow's Archiv*, 1908, vol. cxci, p. 403; and Thorel's communication on miliary tuberculosis with multiple tuberculous foci in the blood vessels (Aerztlicher Verein in Nürnberg, May 4th, 1905).

‡ The statistics on this subject, as is well known, vary considerably, doubtless to some extent according to thoroughness of examination and according to the criterion of what is to be regarded as constituting a tuberculous lesion. Birch-Hirschfeld in 826 *post-mortem* examinations on persons who had been killed by accidents or who had died from acute diseases, found evidence of recent, chronic, or healed pulmonary tuberculosis present in 20.7 per cent. Brouardel, at Paris (in medico-legal necropsies), found the percentage higher. Various pathologists have found evidence of old or fresh tuberculosis in 48 to 95 per cent. of all corpses examined. Amongst recent work on the subject see the percentage statistics given by H. Beitzke of the frequency of tuberculosis in *post-mortem* examinations at the Berlin Pathological Institute (*Berliner klin. Wochenschrift*, 1909, vol. xlvi, p. 388). References are given by Beitzke to other recent work on the subject. It must, of course, be remembered that very many cases, though tuberculous from the strict pathological point of view, never become tuberculous in the ordinary clinical sense of the term. The presence of minute latent tuberculous foci is of great importance, though in the ordinary course of events they may remain quiescent and become obsolete. Many of us are doubtless tuberculous from the strict pathological point of view, even though we enjoy good health, and a contusional injury, if it involves our "weak spots"—that is to say, our *tuberculous spots*—may suddenly render us tuberculous from the ordinary clinical point of view as well as from the pathological point of view. These considerations serve likewise to explain why muscular men, such as athletes, runners, boxers, and persons who live healthy, open-air lives, and who, owing to their splendid physique, might be supposed to be specially resistant towards tuberculosis (*but are, it must be remembered, peculiarly liable to contusional injuries and strains*) sometimes surprise every one by more or less suddenly falling victims to tuberculous affections, especially of the lungs.

three ribs. This injury was followed by the rapid development of well-marked symptoms and physical signs of phthisis (haemorrhage, expectoration and cavity formation) upon the injured side of the chest. He made, however, a quick recovery and returned to his occupation. F. de A. Nogués[14] has described the case of a criminal who a few days after having been punished by 150 lashes, suffered from cough, dyspnoea, and haemoptysis. Pulmonary tuberculosis developed and it is stated that the anterior parts of the lungs were very little affected in comparison with the posterior parts, in comparison, that is to say, with the parts which may be supposed to have been chiefly affected by the traumatism. Nicoletti[15] tells of a labourer, aged 34 years, who after receiving a severe blow on the right side of the thorax, suffered from haemoptysis. In about two weeks' time he was able to return to his work, but soon developed signs of tuberculosis at the apex of the right lung and tubercle bacilli were found in his sputum. A hammerman, aged 44 years, with tuberculous family history, whose case is described by J. Weir,[16] developed signs of tuberculosis of the right lung a few weeks after receiving a blow on the right side of the chest, but some months later he seemed to be on a fair way towards recovery.

Though many more illustrative cases of this class might be referred to, I am inclined to think that examples of pulmonary tuberculosis which seem surely to be connected with an injury to the thorax must, on the whole, be very rare. Doubtless cases in which an already obvious pulmonary tuberculosis is clearly aggravated by such local injury are commoner than cases in which the injury appears to have actually called a pulmonary tuberculosis into existence. R. Link[17] gives the case of a strongly built brewer's drayman, aged 46 years, whose thorax was squeezed between two wagons. He remained three days in bed, but on the fifth day after the injury commenced work again, though suffering from dyspnoea and pains in his back. About six months later attacks of haemoptysis commenced, and he developed signs of active pulmonary tuberculosis at the upper part of the left lung; at the base of that lung there were signs of old thickened pleura. In this case there were grounds for supposing that the injury may have exerted an evil influence on a previously quiescent tuberculosis. E. Mosny[18] mentions the case of a workman who whilst at work fell and fractured some ribs. This was followed by pleurisy, acute manifestations of pulmonary tuberculosis, and death. But the man was known to have had pulmonary tuberculosis before the accident, and the court naturally took this fact into consideration in deciding on the amount of compensation to be paid to the victim's widow and children. On the other hand, had it not been for the accident the man would have probably lived and earned money for several years.

(C) *Tuberculosis of Bones, Joints, etc.*

The question of a localized tuberculosis developing in the region of, and as the result of, an injury (by which no direct inoculation could have been effected) has been chiefly discussed with reference to tuberculosis of the bones and joints. In these cases great discretion should obviously be observed in attaching importance to histories of injury, for with regard to such exposed parts as the knees, ankles, and long bones of the extremities a history of some slight traumatism or other is nearly always forthcoming.

It may be remembered that many experiments on animals have been carried out to ascertain whether the localization of the manifestations of artificially produced general septic conditions could be determined by local traumata (without local inoculation)*—that is to say, whether the site of the local septic lesions (when the circulating blood contained septic microbes) could be determined by contusions, injuries to bones, etc. The results of such experiments were to a great extent affirmative, and have thrown much light on the pathogeny of diseases like acute infective or septic osteomyelitis.† Similar experiments have been carried out with regard to the pathogeny of tuberculous diseases of bones and joints.

Schüller[19] injected tuberculous material (tuberculous sputum, material derived from tuberculous lungs, lymphatic glands, etc.) through a tracheotomy wound into the lungs of dogs and rabbits, and on the same day injured one of the knee-joints of the animal experimented on. In this way he apparently succeeded in producing, not only general tuberculosis, but also tuberculous synovitis of the injured joint, accompanied sometimes by tuberculous osteomyelitis in the neighbourhood. Later on F. Krause[20] injected pure cultures of tubercle bacilli subcutaneously into guinea-pigs and intravenously into rabbits. Directly before, or immediately after, the inoculation, or after a variable lapse of time, a joint was injured or a bone broken. The fractures in every case healed by the formation of bony callus without the development of local tuberculosis, but many of the injured joints became tuberculous (15 out of 44 in guinea-pigs, 14 out of 28 in rabbits); the uninjured joints did not become tuberculous, excepting in a single instance (one of the rabbits).

Lannelongue and Achard[21] found that it was not so easy to determine the site of a tuberculous process by experimental traumatisms as one would surmise it to be from the account of Schüller's experiments. By various methods they inoculated guinea-pigs with tubercle bacilli, and directly afterwards, or later on, produced local injuries of various kinds in joints or bones. The animals died eight to 232 days after the injury, and none of the injured joints were found to be tuberculous. Friedrich[22] introduced cultures of tubercle bacilli of low virulence through the carotid artery into the left ventricle, and thus succeeded in producing a tuberculous joint affection in rabbits, analogous to that in human beings, which took four to nine months to become clinically manifest. But it was remarkable that the tuberculosis in Friedrich's rabbits picked out the joints not subjected to traumatism rather than those in which he had produced an experimental injury. Similarly, B. Honsell,[23] who employed cultures of tubercle bacilli of high virulence, and also some of low virulence, came to the conclusion that in his experiments the localization of tuberculosis was not determined by traumatism.

E. Salvia,[24] however, another of those who made experiments of this nature, injected a virulent culture of tubercle bacilli intravenously into rabbits (by a vein of the ear), and subjected them to different forms of *slight* traumatism. He found that in the thin, flat spongy ribs the trauma always decided a localization of tubercle, which involved the whole thickness of the bone. In regard to the subjacent lung there were more tubercles (and more rapid growth of tubercles) in the parts nearest to the injured ribs. No special localization of tubercles resulted from slight traumata to the bones of the extremities. Definite localization of tuberculous changes was observed in the soft tissues of the articulations after slight chemical injuries.

Jordan,[25] in an excellent summary of the results of experimental investigation of the kind (a summary that I have largely made use of), points out that in animals the positive results of Schüller and Krause were obtained on the basis of a disseminated miliary tuberculosis, whilst in cases of alleged traumatic tuberculosis of joints and bones in human beings there is generally no disseminated miliary tuberculosis present.

We conclude, like Honsell[26] and Jordan conclude, that so-called traumatic cases in man must be explained as the rendering manifest and active of a pre-existing tuberculosis, however limited in extent, quiescent, and latent such pre-existing tuberculosis may have been. Mr. S. G. Shattock in a similar way, I believe, explains the onset of tuberculous bone disease after local injuries in children. He thinks that there is a gradual leakage of tubercle bacilli from tuberculous lymphatic glands, and that some of the escaping bacilli are carried by the blood stream and lodged in the bone marrow, where he supposes they may remain latent until some injury to the bone lowers the tissue resistance, thus favouring the growth of the pathogenic microbes and setting up local tuberculous lesions.

* In regard, however, to the possibility of septic organisms being sometimes introduced into the body at the time of the traumatism, through unnoticed abrasions and scratches in the apparently unbroken skin, see Durlacher's paper on acute osteomyelitis in the *Muench. med. Woch.*, 1904, vol. li, pp. 1689-91.

† For an excellent summing-up of this question see Jordan, *Muench. med. Woch.*, 1901, vol. xlviii, p. 1745. It must be remembered, however, that most cases of acute septic osteomyelitis after contusion (or other injury without open wound) might be equally well explained by the awakening to activity of septic microbes previously resting in a quiescent and latent condition in the bone marrow.

By Urban[27] also an explanation of the same kind seems to be accepted.

He relates the case of a labourer, aged 47 years, who was supposed to have previously enjoyed good health. On August 26th, 1895, he slipped and sprained his right ankle. He continued at his work, however, till the end of the month, but had then to give up owing to increasing pain. Excepting this local spontaneous pain and tenderness to pressure, no definite signs of disease were discovered till September, 1896, when an operation was performed on the right foot and the presence of undoubted tuberculous changes discovered. It became afterwards necessary to amputate the right leg.

Urban accounts for the slow development of the signs of disease in this case by supposing that a small tubercle in the middle of one of the bones of the foot, hitherto latent, was disturbed and awakened to activity at the time of the injury, but that no symptoms, excepting pain and tenderness, developed until the tuberculous process reached the outer surface of the bone, about a year later.

E. Pietrzikowsky[28] thinks that about 20 per cent. of all (clinically obvious) tuberculous affections of the joints and bones are causally connected with some traumatism, which is very rarely a fracture or a dislocation, but usually an injury of lesser degree, such as a sprain or a bruise. (Compare the results of bone fractures in Krause's experiments and those of slight traumata in Salvia's series already alluded to.)

In what he regards as genuine examples of such traumatic tuberculosis, the interval between the accident and the development of obvious signs of tuberculosis is neither very short (few weeks) nor very long (not more than a year at the outside). Moser[29] concludes that a traumatic origin of articular tuberculosis can never be accepted as proved, but only as being more or less probable. He thinks the alleged injury should have been a considerable one, and should have been immediately followed by symptoms of some kind, which symptoms, however, need not necessarily persist until the appearance of definite signs of tuberculosis. The interval between the injury and the manifestation of tuberculosis must be at least four to six weeks, and the shorter the interval the less likely is the joint tuberculosis to be traumatic. According to Moser, the pathological explanation may sometimes be that the injury, by lowering the power of resistance, prepares the way for the development of tuberculosis, but is more usually that an old quiescent and latent tuberculous focus is rendered active and obvious as the result of the injury.

Needless to say, an already manifest, but chronic, tuberculous process can be rendered acute as the result of traumatism. Such a transformation (exacerbation) of a chronic local tuberculosis into an acute one may occur within a few days or weeks after an injury, and a very rapid development of signs of acute local tuberculosis should always give rise to a suspicion that a clinically obvious (though chronic and possibly quiescent) tuberculous affection was present before the injury was received.

Tuberculous lesions connected with local traumatism (contusions, etc.) may doubtless occasionally occur also in other parts of the body. Salvia,[30] in his experiments already alluded to, thought that he could localize tuberculous changes in the livers of rabbits (after intravenous injection of a virulent culture of tubercle bacilli) by repeated slight percussion over the abdomen below the costal margin. Similarly, Orth[31] squeezed the kidney of a rabbit, into whose ear he then intravenously injected a culture of tubercle bacilli. After some time a *post-mortem* examination was made on the rabbit and it was found that the tuberculous changes were more pronounced in the contused kidney than in the other. R. Luecke[32] records a rather different kind of case, namely, one of tuberculous peritonitis in a boy, aged 12 years, which was apparently due to local traumatism. The boy fell down whilst skating, and another boy trod on his abdomen. Acute abdominal symptoms followed, and fifteen days later, when a laparotomy was performed, a condition of diffuse tuberculous peritonitis was discovered. A subsequent *post-mortem* examination demonstrated the presence also of caseous mesenteric lymph glands and some old peritoneal adhesions. In a case like that it is of course quite easy to understand how a traumatism of the alleged kind can set up diffuse tuberculous peritonitis.

What Part does Traumatism Play in Particular Cases of Alleged Traumatic Tuberculosis?

The answer to this question must often be difficult, and must generally be a doubtful one. We have to admit that in all cases (excepting those in which an inoculation with tubercle bacilli from without occurs—a class which we are not now dealing with) tuberculosis of some kind, whether latent or not, must have been present (that is to say, tubercle bacilli must have been present) before the trauma was received. In short, cases of contusional traumatic tuberculosis may, as I have already pointed out, be roughly divided into two classes: those in which obvious tuberculosis existed, and those in which no tuberculosis, recognizable by ordinary clinical methods, existed, previously to the traumatism. In the former class of cases the traumatism merely accelerated the progress of (produced an exacerbation of) an already existing, that is to say, clinically manifest, disease, and it is quite likely that the disease would have ultimately progressed even in the absence of traumatism. But in the second class the patient's condition previously to the traumatism is accepted as having been just like that of any other apparently healthy person, and (knowing as one does that very many apparently healthy individuals carry with them, hidden away in their bodies, minute tuberculous foci which never give rise to serious trouble) one has no right to suppose that the latent tuberculosis in question would, under ordinary circumstances (that is, apart from the results of traumatism, etc.) ever have progressed sufficiently to become recognizable by ordinary examination or to give rise to any serious trouble. In any particular case, therefore, the questions we have to consider are:

1. Is there evidence that any clinically recognizable tuberculosis was previously present or not? If there was already obvious tuberculosis, what was its probable distribution, extent, and activity at the time when the trauma was received?

2. Is it likely from our pathological knowledge and from our study of the individual case in question that the alleged traumatism played any part at all in the outbreak of tuberculosis?

3. Is the whole of the illness to be regarded as practically the direct or indirect result of the traumatism? If, on the other hand, the injury merely caused an exacerbation of a previously existing (clinically obvious) tuberculosis a medical estimate of the extent of the actual damage done by the injury should be, as far as possible, arrived at; that is to say, the difference between the probable condition without any traumatism and the condition actually present as the result of the injury should be estimated.

In order to answer the last two questions a decision in regard to the first must be arrived at. Then the nature, position, extent, and violence of the traumatism have to be investigated; the lapse of time between the injury and the onset of symptoms of tuberculosis has to be ascertained; and one has to consider whether the existing tuberculous lesions and symptoms are of a nature pathologically likely to have followed the traumatism in question.

I am quite aware that the pathological answer in many cases will be by no means identical with the medico-legal, or rather legal, answer. In every case, however, the exact pathological consideration of the data should be required. Of special importance is the knowledge that an outburst of traumatic tuberculosis (apart from that due to actual inoculation) is, pathologically speaking, according to the experimental and clinical evidence already referred to, the result of the disturbance of a pre-existing, though generally unrecognized and often quiescent, tuberculous focus. It is therefore quite conceivable that a man may have an encapsuled caseous tuberculous nodule not at the site of the main injury but at some distance from it—for instance, on the opposite side of the thorax*—and that the injury may yet be sufficient to rupture it (in the case of the lungs violent respiratory movements connected with the excitement and accident might play a part in this), so that the tuberculous disease may first show itself at some

* Cf. Port, Aerztlicher Verein in Nürnberg, July 18th, 1907; *Muench. med. Woch.*, 1907, vol. liv, p. 2013.

distance from the site of the alleged injury.* (I do not, of course, here refer to disseminated miliary tuberculosis following injuries.)

TRAUMATIC PNEUMONIA, TRAUMATIC PLEURISY, ETC.

I shall not stop to discuss such conditions as traumatic pneumothorax, haemothorax, pyopneumothorax, haemopneumothorax, pleurisy, empyema, septic pneumonia, and pulmonary gangrene, when obviously due to penetrating wounds and their complicating infections, nor shall I deal with pneumonia or pulmonary gangrene following operations or injuries to the upper air passages, such as cases due to the introduction into the bronchi of foreign bodies or septic particles during dental operations under general anaesthesia. There are numerous cases known of pneumonia-like symptoms following operation on the pelvic viscera, herniotomy, operations and injuries to the abdomen, operations on varicocele and varicose veins of the extremities, fractures of long bones, etc. Some of these may be examples of ordinary pneumonia due to the patient's diminished resistant power as a result of shock, etc. (in the same way psychical shocks may probably favour the development of pneumonia in susceptible individuals), others may be due to the sucking in of septic particles from the mouth during general anaesthesia, and other cases may be in reality of embolic origin. But I cannot enter upon such cases here. Nor need I consider traumatic pneumothorax and traumatic haemothorax when obviously merely mechanical results of fracture of ribs or severe contusional injuries. In regard to cases of "traumatic pneumonia" in the most limited sense, that is to say, "contusional pneumonia" (which may or may not be associated with fracture of ribs), I shall first of all refer to the results of some recent experiments on animals by Külbs.[33]

Külbs, in a series of dogs, investigated the effects of more or less severe contusions of the thorax, and found that considerable changes, mostly haemorrhages of greater or less extent, had been produced in the lungs, together with slight injuries to the pulmonary pleura. In a few cases, after very violent blows on the thorax, the lung tissue and pleura were found considerably torn. Sometimes the whole of a lobe was infiltrated with extravasated blood, sometimes the haemorrhagic infiltration was nodular in distribution, mostly in the deeper portion of the lobe. In the animals killed some days or weeks after the injury, the process of repair, the development of granulation tissue, and then of ordinary scar tissue, was observed. The pulmonary changes were not always found limited to the region of the thorax where the blow had been received. This was more noticeable when the front or side of the thoracic wall than when the stronger and less yielding dorsal portion had been struck. Only in the former case could a "*contrecoup*" effect be obtained—for instance, haemorrhage in the right upper lobe when the traumatism was applied over part of the left lung. Reineboth's[34] results in rabbits differed somewhat from those obtained by Külbs in dogs, and Külbs has satisfied himself by actual experiment that in rabbits the ribs are less elastic and more fragile than in dogs.

Contusional Traumatic Pneumonia.

Though actual pneumonia has not been produced in animals comparable to "traumatic pneumonia" in human beings, nevertheless, as Külbs points out, changes such as he produced in the pulmonary tissue by traumata must favour the local growth of pathogenic microbes, should such find their way to the injured parts. Traumatic pneumonia in human beings may, indeed, be well explained as due to the growth of pneumococci or other microbes previously present in the respiratory organs in a quiescent and latent condition, but awakened to activity as a result of the trauma and the lowered resistance of the patient's tissues. As pointed out by Litten,[35] who in 1881 apparently first introduced the term "contusional pneumonia" (*Kontusionspneumonie*), it does not seem clear that all cases clinically classed as traumatic pneumonia are really examples of typical microbic pneumonia. The signs in some cases may be due to haemorrhagic infiltration, such as Külbs produced by contusion of the thorax in animals, possibly associated with serous or haemorrhagic effusion into the pleura. In cases that I have seen myself (and can refer to through the kindness of my surgical colleagues, Dr. E. Michels and Dr. J. P. zum Busch), I have had considerable doubt as to the precise nature of the change.

A boy, Albert G., aged 8 years, was run over by a cart on the morning of March 13th, 1909, and was brought at once to the German Hospital. On admission his temperature was 97° F., but rose to 101.2° F. in the evening. On the evening of the next day (March 14th) the temperature was 103.4° F., and then began gradually to fall. There was some bruising of the back of the thorax, but no evidence of fractured ribs was obtained either by ordinary examination or by skiagram taken later on. When I saw the boy on March 15th there was a good deal of dyspnoea, general uneasiness, and cough. Resonance to percussion was slightly impaired in the lower part of the right infrascapular region, and there were bronchitic sounds at the bases of both lungs. He complained of pain in the lower left part of the front of the chest. By March 18th the temperature had fallen to normal and he had no pain, but he still coughed, Pulse 116, respirations 34, to the minute. There was then decided impairment of resonance and diminution of breath sounds at the base of the right lung, and occasional dry bronchitic sounds could still be heard at both bases. After that the boy's general condition gradually improved, and he had no further fever excepting on one occasion (100° F. on the evening of March 22nd). For some time there was relative deficiency of the inspiratory breath sounds over the right lung.

The signs in this case might perhaps all (including the fever) be accounted for on the supposition of traumatic haemorrhagic infiltration (as in Külbs's experiments) in both lungs, but especially in the right one.

A little girl, Edith S., aged 4½ years, had her chest run over on September 16th, 1898, and was brought on the same day to the German Hospital, where she was admitted under Mr. R. W. Parker. No ribs were broken, and there was not much external bruising. On admission the temperature was 102° F., and examination of the chest revealed bronchitic signs only. On September 19th, however, there was dullness to percussion, with very clear bronchophony and a few scattered crepitations, over the whole of the lower back portion of the left lung. There was less fever than on admission, but the patient was in a semi-conscious condition, and was often "grinding her teeth." By September 22nd the abnormal signs in the chest had practically cleared up; there was no fever in the morning, and the patient was quite cheerful.

In a little girl, aged 8 years, whose case has been recorded by W. P. Cockle,[36] great pain in the right side was complained of when on one occasion her father suddenly lifted her up by the thorax. She said something had "given way." The temperature two hours later was 100° F., and the breathing was very frequent. Next day the temperature was 103° F., and the pain continued. Later on pleuritic friction developed at the site of the pain. After a week the temperature gradually fell to normal, the friction and pain disappeared, and the child recovered completely.

Here, again, the injury may have produced not a pneumonia in the strict sense of the term, but a pulmonary change similar to those experimentally produced by thoracic contusions in dogs (Külbs). In this connexion it is interesting to note that Sir J. E. Erichsen[37] claimed that cases of so-called "traumatic pneumonia" were either mere bruising of the lung and not dangerous, or else were due to an inflammation of spreading septic character and dangerous to life.

I can certainly instance one fatal case (at St. Bartholomew's Hospital, 1892) in which the *post-mortem* examination showed grey hepatization of part of one lung.

The patient, a man 58 years of age, had several ribs on his right side fractured by being knocked down and run over by a cab. On admission immediately afterwards his temperature was found to be 100° F. He was a gouty and bronchitic subject, and his urine contained albumen. Afterwards there was considerable dullness at the base of the right lung, and later on signs of consolidation of the right apex. He had decided fever (for some time about 102°–104° F., once higher), became delirious, and died on the fifteenth day after the injury. The necropsy showed grey hepatization of the upper part of the right lung.

This seems to have been a case of actual pneumonia supervening on severe contusion of the lung.

E. Bloch[38] mentions the case of a man, aged 41 years, who, when suffering from slight bronchitis, fell down in such a way as to severely strike the lower posterior part of the right half of his thorax. The next day his temperature suddenly rose to 103.1° F., and the physical signs of pneumonia developed at the base of his right lung. A kind of crisis occurred on the fourth day of the illness, and later on some pleuritic signs cleared up spontaneously.

* Vide, Port, loc. cit. Rare cases of acute tuberculous broncho-pneumonia following abdominal operations performed under general anaesthesia may be theoretically explained in various ways. Cf. the case recorded by Mackey, Macdonald, and Sutherland in the BRITISH MEDICAL JOURNAL, 1910, vol. i, p. 745.

C. Rubino[39] speaks of a man, aged 53 years, who, as he was commencing to carry a very heavy stone on his right shoulder, suddenly felt pain in the region of his right scapula. This pain was accompanied by cough and dyspnoea, and forty-eight hours later the first signs of pneumonia appeared on the right side.

Litten[40] attaches special importance to the lifting of heavy weights in the etiology of "contusional pneumonia." He knows of several cases in which fatal pneumonia supervened soon after such exertions.

Thus, when a heavy carriage had just been lifted, one of the men employed in lifting it fell down and had to be carried home. Two days afterwards he was found to have pneumonia, which soon proved fatal. Another man, when helping to lift a heavy stone flag with a lever, complained of pain in the chest, and spat up some blood. Signs of pneumonia developed two days later, and fatal gangrene of the lung followed.

An interesting case of doubtful nature that occurred not long ago in England was that of a man who was violently thrown when hunting and fell heavily on his left shoulder and side. He then rode home wet through. Signs of pneumonia developed very soon afterwards, and he died seven days after the injury.

Many other cases, resembling some of the preceding ones, have been recorded, and a good many papers on the whole subject of traumatic pneumonia have appeared from time to time.*

In regard to the symptoms of traumatic pneumonia, it is probable that in the more favourable cases there is less expectoration than in ordinary non-traumatic pneumonia. Early haemoptysis, due to the mechanical injury of the lung, seems to be a characteristic of some, but by no means of all, cases. External bruising is of course often present, but is by no means necessarily a marked feature, and may be absent altogether. A crisis may occur, as in typical examples of ordinary pneumonia. Recovery is the rule, but the proportion of fatal cases, according to Litten, is considerable. Chronic bronchitis, alcoholism, and degenerative conditions of the blood vessels doubtless act as predisposing causes† of contusional pneumonia, and favour the severity of the attack.

With reference to the diagnosis of contusional pneumonia Litten claims that a traumatism of suitable kind should be ascertained to have preceded the lung symptoms, that there should naturally be no evidence that the patient had pneumonia before the traumatism, and that the time intervening between the injury and the onset of the pneumonia should not be too long. The condition of the patient during the intervening period varies in different cases. Patients brought to the hospital after the injury may go home and may even commence work again before the development of signs of pneumonia. I know of a case in which the patient was first of all brought to a hospital in a drunken condition with a scalp wound. This was seen to and he was sent away, but a policeman brought him back again saying that he complained of a pain in his right side. He was then treated for fractured ribs and allowed to go home, but he could not sleep and the pain in his side continued. On the third day he was admitted and looked like an ordinary case of pneumonia with signs of consolidation of the lower part of the right lung, orthopnoea and rusty expectoration. Recovery took place with a sort of crisis on the seventh day.

The shortest interval between the traumatism and the development of pneumonia, according to Litten, is ten hours; this was the interval in a case he observed himself, and likewise in a case of Aufrecht and in another one of Birch-Hirschfeld. Stern fixed the interval at between a few hours and four days. The average is perhaps about two days. Litten now thinks that an interval of six days is possible, but longer periods have been recorded. For instance, in one case von Leyden regarded an interval of fourteen days as not impossible. The case was that of a workman who fell from a ladder so as to receive a blow on his thorax. He continued at work for fourteen days and then developed pneumonia, from which he died a few days later. In the discussion on Litten's paper, Fürbringer mentioned that in one case he had also recognized a connexion between pneumonia and trauma, though the interval between the two was as long as fourteen days; in the case in question the injury was soon followed by signs of pleuritis, though the pneumonia did not apparently develop till fourteen days had passed.

Traumatic (Contusional) Pleurisy.

One or two cases in which contusional pleurisy was associated with contusional pneumonia have already been referred to. It must likewise be remembered that the physical signs of pleurisy may be due to slight tearing of the pleura from severe contusions of the thorax, such as occurred in some of the dogs experimented on by Külbs.[41] A very important point is that signs of pleurisy after injuries to the chest may be due to tuberculosis. Pleurisy, with or without fluid effusion, has certainly sometimes been associated with signs of pulmonary tuberculosis following thoracic traumatism. Such cases belong really to the first part of my paper, and from the pathological point of view the connexion between contusions of the chest and tuberculous pleurisy may be explained in the same way as that between contusions and pulmonary tuberculosis.[42]

* Souques ("Pneumonie contusive," *Presse médicale*, Paris, March 3rd, 1900, p. 109) refers to much of the older literature on the subject. Amongst older works on the traumatic origin of diseases of the thoracic viscera see especially R. Stern, *Ueber traumatische Entstehung innerer Krankheiten*, Jena, 1896.

† Cf. F. Pancrazio, Acad. Med. di Padova, March 31st, 1907, *Policlinico*, Rome, 1907, vol. xiv (Sezione pratica), p. 781.

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IN his annual report to the Aberystwyth Rural Council Dr. James concludes as follows: Were I to preach in this land of preachers and sermons my text would be "cleanliness is next to Godliness," and I would accordingly divide my discourse into three heads—first, cleanliness; secondly, cleanliness; thirdly and lastly, cleanliness. I would dilate upon the necessity of having clean air to breathe; clean, nourishing food to eat, and clean water to drink; a clean house to live in with clean surroundings. I would also emphasize the virtues of personal cleanliness and would condemn the mere ablution of hands and face as hypocrisy, humbug, and fraud. I would end my sermon by impressing on the minds of my hearers the truth that a damp dwelling house is a safe way to sanitary perdition.

A STUDY OF VON PIRQUET'S TUBERCULIN REACTION IN THE SURGICAL DISEASES OF CHILDREN.

ANALYSIS OF 223 CASES.

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THE cutaneous tuberculin reaction, which commonly goes by the name of von Pirquet, has received less attention here than on the Continent. The failure of Calmette's reaction to do all that was hoped of it has possibly prevented the cutaneous modification from receiving as fair a trial at the hands of clinicians as it deserves, and certain widespread errors with regard to the reaction have often prevented it from receiving a trial at all. The commonest of these is the statement frequently met with that all individuals over the age of 2 years, whether tuberculous or not, give the reaction; this I hope to show to be quite erroneous. Wolf-Eisner, in his work on the diagnosis of tuberculous disease, states that the cutaneous reaction is more delicate, and therefore less reliable when positive, than the ophthalmic, and seems to give the preference to the latter. He prefers, however, when possible, to observe both. Having known some unfortunate results from the ophthalmic reaction, I have confined myself entirely to the cutaneous form, which at any rate possesses the virtue of complete harmlessness.

The object of my experiments was to discover whether healthy individuals reacted, the effect of a previous reaction on a second one, the general reliability of the reaction, and, finally, whether or no any prognostic value could be attached to the type of reaction. My experience is limited to 223 cases, and to patients under 12 years of age.

Technique.

A small area of skin, conveniently on the arm, is sterilized, and a drop of a 20 per cent. solution of Koch's old tuberculin placed on it. The solution is usually in glycerine, and is kept in small capillary tubes similar to those used for vaccination and calf lymph. The skin is then lightly scratched through this solution until a slight hyperaemia is produced. The capillary plexus should not be opened, but I have not found that a small drop of blood interferes with the reaction in any way. A special instrument has of course been invented for this purpose, but I prefer a domestic needle. A control scratch is made through glycerine or normal saline, and a small dressing is applied for twenty-four hours.

The common type of positive reaction is as follows: In twenty-four hours the tuberculin scratch shows a slight hyperaemia and oedema extending a little beyond the actual scratches of the needle. The control scratch should be invisible. In forty-eight hours the spot is redder, and is very definitely raised so as to be palpable to the finger. On the third day it has begun to fade, and on the fourth day it is usually gone.

A.—*Results of the Reaction in Healthy Children.*

The reaction was tried on 48 children who had been carefully examined without any evidence of tuberculous disease being detected. They were chiefly cases admitted to hospital for radical cure of hernia, fracture, cleft palate, or infantile paralysis. In each case I ascertained that there was no family history of tuberculous disease. Their ages varied from 9 months to 11 years.

In every case the reaction was negative—that is, there was no difference between the tuberculin scratch and the control scratch. This fact is, of course, of primary importance if the value of the reaction is to be established. My first conclusion, therefore, is that in children who show no evidence of tuberculous disease a negative reaction may confidently be expected.

B.—*Results of the Reaction in Cases known to be Tuberculous.*

In all these cases the tuberculous nature of the condition was established by operation or *post-mortem* examination. In cases which were not obvious a microscopical examination was made. It was assumed, however, that lymphatic glands which showed definite evidence of caseation were tuberculous. Cases merely diagnosed clinically as tuberculous are considered in the next section.

Of these cases known to be tuberculous there are 21 in my series.

Of these, 19 gave a positive reaction. They were:

Tuberculous cervical adenitis ...	11 cases
,, joints	6 ,,
,, periostitis	1 case
,, meningitis (following mastoid disease) ...	1 ,,
Total	19 cases.

Two cases gave no reaction; they were:

Tuberculous peritonitis.
Tuberculous hydrocele of tunica vaginalis.

In the former of these the reaction was repeated, with a negative result. The fact that tuberculous peritonitis was present here was only discovered on the accidental prolapse of some omentum during the radical cure of a hernia. There were no clinical signs of the disease. From this one case of course nothing can be induced, but it is interesting from the fact that tuberculous peritonitis has always given a negative result with Calmette's reaction.

The tuberculous hydrocele was a case in which a small patch of granulations was found on the tunica vaginalis during a radical cure. On section, typical giant cells were seen.

The association of a tuberculous hydrocele with a similar form of peritonitis in children is fairly common, and this may quite reasonably have been the case here. Consequently all the known tuberculous cases gave a positive reaction with two exceptions, one of which was known to be, while the other probably was, tuberculous peritonitis.

Of the cases of tuberculous cervical adenitis referred to above as giving a positive reaction, one had been operated on two years previously for tuberculous peritonitis. There was no sign of this condition when I saw the case.

C.—*Cases Clinically Diagnosed as Tuberculous.*

Of these, there were 43 in my series, not including those referred to above, in which a pathological diagnosis was possible.

Thirty-four gave a positive reaction; they were:

Tuberculous hip	14 cases
,, knee	2 ,,
Spinal caries	8 ,,
Tuberculous cervical adenitis ...	8 ,,
Lupus vulgaris	2 ,,
Total	34 ,,

These cases showed nothing in their course or termination to throw doubt on their tuberculous origin.

Nine cases gave a negative reaction. Of these, 8 eventually proved to be almost certainly not tuberculous. They were:

Syphilitic arthritis	1 case
Staphylococcal caries	1 ,,
Septic infection of cervical lymphatic glands	1 ,,
Congenital thickening of epididymis ...	1 ,,
Vesical calculus	1 ,,
Non-tuberculous arthritis of doubtful origin	3 cases
Total	8 cases.

The remaining case was one of spinal caries, and I believe this to be one of the four cases in my series in which the reaction was misleading.

Of the above 8 cases, 2 were diagnosed as "tuberculous coxitis," and their rapid cure by a short period of immobilization was in marked contrast to the progress of similar cases giving a positive reaction.

D.—*Cases Clinically Doubtful.*

Of these, there were 11.

Three of these gave a positive reaction. They subsequently proved to be:

Tuberculous caries of rib	1 case
Tuberculous coxitis	1 ,,
Lymphadenoma	1 ,,
Total	3 cases.

The case of lymphadenoma is the second of the four referre to as giving a misleading reaction.

Eight cases gave a negative reaction. They subsequently proved to be:

Simple vaginal hydrocele	2 cases
Septic cervical adenitis	2 ,,
Septic osteomyelitis	2 ,,
Sarcoma of kidney	1 case
Septic ext. iliac lymph glands... ...	1 ,,
Total	8 cases.

Thus of a total of 123 cases the reaction was misleading in 4 only. Two of these were tuberculous peritonitis, 1 was spinal caries, and 1 was lymphadenoma, in which the reaction was positive. In this connexion it is interesting to remember that some pathologists have considered lymphadenoma to be a form of tuberculous infection.

Reaction on Repetition.

The diagnostic value of the reaction having been established, certain points of more academic interest come up for consideration. Prominent among these is the question of repeating the reaction. It has been stated that the result is always positive on the second attempt, and this has been attributed to the absorption of some of the tuberculin on the first occasion, and its subsequently causing a reaction to the second scratch. This is quite erroneous, as the following 14 cases in which I made the experiment show:

		Cases.
Reaction negative.	Repeated in 24 hours, again negative ...	6
Reaction negative.	Repeated in 48 hours, again negative ...	1
Reaction negative.	Repeated in 5 days, again negative ...	7
Total		14

In 10 cases which gave a positive result I repeated the reaction (often many times), and the result was invariably still positive. The reaction may therefore be repeated without impairing its value, if for any reason it is found desirable to do so.

Reaction after Injection of Tuberculin.

Closely connected with the case of a repeated reaction is that of the reaction after a previous injection of tuberculin. The injection of tuberculin into a healthy person who gives a negative reaction will not cause a positive reaction to appear. This is proved by the following cases:

Eight healthy individuals were given an injection of tuberculin ($\frac{1}{2000}$ mg., and twenty-four hours later von Pirquet's reaction was done on six of them. It was in each case negative. Forty-eight hours after the injection the reaction was tried on the remaining two, and it was negative in these also.

But though the injection of tuberculin will not cause a positive reaction in a healthy individual, it will in certain cases curiously modify the type of reaction given by a tuberculous case. Before discussing this, a few words must be said about the types of reaction commonly seen.

The usual type which was referred to at the beginning of this article appears slightly on the first day, reaches a maximum on the second, and fades on the third and fourth. For convenience of description the intensity of the reaction will be represented by the following symbols: The sign + represents what I came to regard as the average amount of redness and oedema present in forty-eight hours. This is modified by qualifying adjectives written below, which indicate any divergence from the average. The sign − indicates no reaction. Thus, written symbolically, the common form of reaction would read as follows:

First Day.	Second Day.	Third Day.	Fourth Day.
+	+	+	+
Slight		Fading	Nearly gone

In other cases the type of the reaction is similar, but its intensity is much greater. Thus, I have frequently seen the following:

First Day.	Second Day.	Third Day.	Fourth Day.
+	+	+	+
Marked	Very marked	Marked	Fading

Or the reaction may run a perfectly even course, thus:

First Day.	Second Day.	Third Day.	Fourth Day.
+	+	+	+
			Fading

Reactions of the above types are commonly seen in the less serious forms of tuberculosis, such as glandular infections, in which the general health and the resisting power of the individual remain good. In more advanced cases, and especially in cases of joint disease with septic sinuses and evening temperature, the reaction frequently takes an entirely different type. Thus:

First Day.	Second Day.	Third Day.	Fourth Day.
+	+	−	−
	Nearly gone		

Here the maximum is on the first day, and the reaction has almost disappeared by the second. This condition may be so exaggerated that the reaction may have almost disappeared in twenty-four hours, and in doubtful cases, therefore, it is necessary to make an examination in eight or twelve hours, so as to be sure of not missing an early fleeting reaction.

In direct contrast to this is the reaction often seen in cases of old healed tuberculosis; thus:

First Day.	Second Day.	Third Day.	Fourth Day.
+	+	+	+
Marked	Very marked	Very marked indeed	Very marked indeed

Going on and only fading at the end of ten or fourteen days.

Wolf-Eisner regards the type of reaction seen as an important element in prognosis, and quotes a number of cases to prove his contention. My cases are not sufficiently numerous to enable me to speak with certainty on this point, but there is a fallacy in basing a prognosis upon the type of reaction owing to its great variability with the temporary condition of the patient. This variability seems to depend partly on the general health but mainly on injections of tuberculin, by autoinoculation or otherwise. From a prolonged series of observations it was found that an injection of tuberculin caused the reaction to take on the "early fleeting" type referred to, and it only returned to the normal in about seven days. Consequently, if the reaction be tested with a view to prognosis, it must not be done within a week of treatment by tuberculin.

Reaction with Bovine Tuberculin.

As it appeared a matter of some pathological interest the reaction was tried on a number of cases, using tuberculin made from the bovine as well as the human form of the tubercle bacillus. In fifteen such cases the reaction to the human and the bovine forms were exactly similar. Occasionally the intensity of the reaction was a little greater to one than the other, but the type was always the same. Moreover, the bovine reaction was similarly affected by injection of ordinary tuberculin. It was concluded, therefore, that as regards this reaction human and bovine tuberculin are substantially similar.

Reaction with Other Vaccines.

The reaction was tried in other forms of microbic infection (staphylococcal, streptococcal, and pneumococcal), using the corresponding vaccine in each case. In no case was any diagnostic reaction obtainable.

Summary and Conclusions.

1. Healthy children up to 12 years of age do not give von Pirquet's tuberculin reaction.
2. Tuberculous cases, with certain rare exceptions, do give this reaction.
3. The reaction has been of value in many doubtful cases.
4. The reaction may be repeated if desired without being modified or altered thereby.
5. A previous injection of tuberculin will not produce a reaction in a healthy patient.
6. An initial injection of tuberculin modifies the type of the reaction in a tuberculous case. The type returns to normal in about a week.
7. Bovine tuberculin behaves in an exactly similar manner to ordinary human tuberculin when used for the reaction. The reaction to bovine tuberculin is similarly modified in type by a subcutaneous injection of human tuberculin.

THE TUBERCULIN SKIN REACTION (VON PIRQUET'S).

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I AM indebted to the kindness of Dr. Hutton and Dr. Heywood for permission to publish an account of our experience in their wards in the Manchester Children's Hospital, Pendlebury, with the von Pirquet skin reaction during the months October, 1909, to March, 1910.

The test was applied in 92 cases, which I have tabulated below. The procedure we adopted was to make three small scarifications on the forearm, aseptically prepared, two above, parallel, and one below. The upper two were inoculated with 25 per cent. tuberculin solution obtained from Messrs. Martindale. The lower was used as a control. The appearance of a ring of hyperaemia or red papules in twenty-four hours was regarded as positive. In the table below the cases styled "non-tuberculous" were chiefly chorea or enuresis, in which no signs of tuberculosis were discoverable clinically. The table contains the clinical diagnoses of the diseases in which the test was applied.

Von Pirquet's Reaction.	Positive.	Negative.	Total.	Positive.
				Per cent.
1. Undoubted pulmonary tuberculosis	18	4	22	81.8
2. Doubtful pulmonary tuberculosis	10	1	11	90.9
3. Bronchitis	4	3	7	57.1
4. Pneumonia	2	2	4	50.0
5. Bronchopneumonia	1	5	6	16.6
6. Pleurisy	4	3	7	57.0
7. Empyema	—	6	6	—
8. Abdominal tuberculosis ...	3	2	5	60.0
9. Doubtful enteric fever ...	2	—	2	100.0
10. Renal tuberculosis	1	1	2	50.0
11. Tuberculous meningitis ...	2	4	6	33.0
12. Cerebral tumour	1	—	1	100.0
13. Non-tuberculous cases ...	—	13	13	—
Total...	48	44	92	52.1

1. *In the Twenty-two Cases of Undoubted Pulmonary Tuberculosis*—*(a)* In the 18 positive cases all presented definite signs of phthisis; 11 gave definite family history of tuberculosis; in only 4 was there pyrexia, the rest were quiescent. *(b)* In the 4 negative cases, all presented definite signs of phthisis. In one there had been an attack of pneumonia seven weeks previously (? unresolved pneumonia); another, with definite family history and definite signs of pulmonary tuberculosis, had traces of a recent attack of chicken-pox upon him; the other 2 gave a marked family history of tuberculosis, no history of pneumonia, and both had marked physical signs.

2. *In the Eleven Cases of Doubtful Pulmonary Tuberculosis*—*(a)* In the 10 positive cases, 6 gave definite family history of tuberculosis, 5 of previous bronchitis or pneumonia, and 6 a history of measles. There was no pyrexia, the signs were very vague, and the history of loss of flesh and night sweats was variable. The majority of these improved under treatment. In 2 cases it was thought that the disease might have been freshly lighted up by the application of the tuberculin; but on the whole the test was an aid to diagnosis, and led to earlier and more definite lines of treatment than might otherwise have been adopted. *(b)* In the 1 negative case there were definite signs and symptoms of phthisis; no pyrexia was present. The patient was discharged "cured."

3. *In the Seven Cases of Bronchitis*—*(a)* In the 4 positive cases, the clinical diagnosis in 3 was bronchitis (? pulmonary tuberculosis); there was a definite history of measles in 3; no family history of phthisis. All presented signs so vague that a definite diagnosis could not be made except from the history of chronic cough, expectoration, and loss of flesh. In the fourth there was a long history of cough, loss of flesh, and expectoration, and there was a very vivid reaction, and it seemed as if the tuberculin might have lighted up the disease here, as definite signs shortly developed at both apices, and did not clear up on discharge. *(b)* In the 3 negative cases, in 2 there was a definite history of phthisis, in all of measles, and there were only signs of chronic bronchitis and cough; they were treated for this and discharged cured.

4. *In the Four Cases of Croupous Pneumonia*—*(a)* In the 2 positive cases, in 1 the clinical diagnosis was unresolved pneumonia; there was a definite history of phthisis. In the other chronic bronchitis had existed for a year; no family history of tuberculosis. The case improved but still displayed signs on discharge. *(b)* In the 2 negative cases, both were definite cases of pneumonia, and they both cleared up absolutely and were discharged cured.

5. *In the Six Cases of Bronchopneumonia*—*(a)* In the 1 positive case there was a definite history of phthisis and history of measles and chronic bronchitis. The temperature fell shortly after admission, and the diagnosis of phthisis seemed established. *(b)* In the 5 negative cases there was no family history of phthisis; there was history of measles in 2 cases. All seemed definite cases of bronchopneumonia. The signs cleared up, and the cases were discharged cured.

It is not necessary to summarize the other cases. In pleurisy we found the test of help in diagnosing the cause of the effusion, which we were able to verify in some cases by microscopical examination of the fluid, and by culture methods. The same help was obtained in the cases of empyema. In the diagnosis of suspicious cases of enteric fever we got great help from the test. In the cases of meningitis it is difficult to understand why the test was negative in 4 of the 6, as all had equally pyrexia and the fluid in each case was clear. In both the positive and in one of the negative cases pure cultures of pneumococci were grown from the spinal fluid. All were found definitely to be tuberculous meningitis *post mortem*. The case of cerebral tumour which gave a positive reaction had no pyrexia, and solitary tubercles were found *post mortem*.

We have come to the conclusion that the test is of great help:

1. In the early diagnosis of pulmonary tuberculosis and its distinction from unresolved pneumonia and chronic bronchitis.
2. In the differential diagnosis between enteric fever and abdominal tuberculosis and the early diagnosis of abdominal tuberculosis.
3. In the diagnosis of the cause of pleuritic effusions.

We do not appear to get much help from the test:

1. In cases of tuberculous meningitis.
2. In cases of tuberculosis where some acute infectious disease accompanies it; and
3. Cases of tuberculosis associated with much pyrexia.

We have not yet facilities for applying the test to every case entering the hospital which would give much more satisfactory statistics. From our experience it is not established that the test is quite without risk to the patient, as mentioned above. Up to the present, however, it has been most helpful in diagnosis, and appears to us as not entailing any serious risk to the patient.

SOME POINTS RELATING TO THERAPEUTIC IMMUNIZATION.*

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THERAPEUTIC immunization is a method of treatment in cases of bacterial invasion whereby the aid of proved scientific phenomena is brought to Nature in establishing a rising tide of immunity, and thus enabling the human organism to react successfully to the infection, in precisely the same manner as is accomplished by Nature in those cases where spontaneous cure results. I would here remind you that opsonin renders the bacteria vulnerable to the phagocytes, that without its presence in a germ laden tissue phagocytosis cannot take place, and that from the early experiments of Wright and Douglas it is evident that opsonin acts on the bacteria and not on the phagocytes.

In vaccine therapy we are dealing with a method that is capable of giving the most gratifying results—at times beyond the dreams of the most sanguine—yet unless judiciously applied it may lead to dire disappointment, and receive much undeserved condemnation. Where this has occurred I have almost invariably found that the fault lay with the would-be immunizator rather than with the method. It is useless to inject vaccines into a patient,

* Read before the Bath and Bristol Branch of the British Medical Association.

even in the most suitable doses, if the flow of highly opsonized lymph through the diseased tissues is not assured, and it is equally futile to treat a patient with a vaccine prepared from other than the variety of organism causing the disease; or again, it is useless to expect one vaccine to effect a cure in a multiple infection; yet all these errors have been the cause of reputed failures of the method. It is my belief that cure is practically certain in any uncomplicated case of localized bacterial infection if one can succeed in three things—namely, isolating the offending organism, preparing a vaccine from it and administering it in suitable doses, and determining the flow through the attacked tissues of the resulting highly opsonized lymph. I have mentioned localized infections only, for as yet sufficient work has not been done in systemic infections to warrant my speaking dogmatically regarding the treatment of these by vaccines. Much light is being thrown upon the treatment of such infections by Morgan, Freeman, and other workers at St. Mary's Hospital Inoculation Department and elsewhere, and I have obtained most encouraging results in whooping-cough, phthisis, rheumatism, and in some cases of pneumonia and diabetes.

Those who have read Metchnikoff's lectures on the Comparative Pathology of Inflammation will remember his generalization that everywhere in the vertebrate and invertebrate kingdoms, the introduction of bacteria into the tissues is responded to by a determination of phagocytes to the seat of infection, and that this migration of phagocytes is the *only* antibacterial agency, and that therein is the *whole* import of inflammation. Wright and Douglas, Bulloch, and others have since then shown that phagocytes, when unaided by the opsonic power of the blood are impotent. So that to-day we must regard the processes of inflammation as ministering to immunization, on the one hand by the transference of phagocytes and on the other by the transference of antibacterial fluids from the blood to the invaded tissues. In other words, Nature attempts cure in a local bacterial invasion by producing a migration of leucocytes into the infected tissues accompanied by a levelling up of the amount of opsonin in the invading tissues to that in the circulating blood; and it therefore follows that if the opsonic content of the blood is deficient we shall fail to obtain a destruction of the invading bacteria. Herein lies an explanation of the failure of Metchnikoff's original theory in those cases of inflammation where phagocytic migration is unattended by cure.

Spontaneous cure in localized bacterial infection is brought about by the transfer of antibacterial substances, phagocytes, and opsonized lymph, from the circulating blood to the infected tissues; when spontaneous cure fails we can give aid on the one hand by raising the antibacterial content of the blood, and on the other by assisting the flow of these substances through the infected tissues.

With these points in view I would draw your attention to the advisability of relinquishing the use of antiseptic applications to the attacked tissues, for it is very doubtful if they act against bacteria *in vivo;* and their application to tissues whose superficial layers are invaded by bacteria is of very doubtful value. By such applications we paralyse and destroy the chief line of natural attack—the phagocytes, whose action is aided by the presence of opsonin, which even the mildest of antiseptics will destroy. The aim of local treatment should be to promote a migration of leucocytes to the part, and to ensure the bacteria present being kept in a seductively attractive condition by stimulating a good flow of opsonized lymph through the germ-laden tissues. In order to attain this end conditions must be made favourable for the egress of antibacterial agencies from the blood, by raising the hydrostatic pressure in the capillaries of the infected part, and by diminishing the coagulability and viscosity of the blood. A way must also be made for the entrance of these elements into the focus of infection by evacuation, preferably combined with the local application of a chemical lymphagogue. Heat, either by fomentations or by dry hot sandbags, when applicable, will determine a flow of blood to the part, and consequent egress of phagocytes. The leucocytes may be increased in number six or seven-fold by the administration of yeast, which I give three times a day in 5-grain tablets. The hydrostatic pressure in the capillaries may be increased by Bier and Klapps's method of constriction or vacuum cupping. Where there is brawny thickening, signifying that the bacteriotropic elements of the blood are being arrested by coagulation, thus choking the tissues, and preventing both leucocytes and opsonized lymph from reaching the nidus of infection, the coagulability and viscosity of the blood must be diminished; this is best accomplished by administering citric acid as such, in doses of 1 drachm three times a day, or as the juice of lemons, about four or five a day being necessary.

To effect an entrance of bactericidal elements into the focus of infection evacuation is performed by incision or aspiration, and by the application of chemical lymphagogues to the attacked tissues. A solution of salt 2 to 4 per cent., with sodium citrate 0.5 per cent., provides an ideal lymphagogue in these cases; the salt by osmosis stimulates the flow of lymph, which is prevented from coagulating and scab formation by the decalcifying action of the citrate.

In localized infection the opsonic indices taken after ionization, *x*-ray and electro-radiant heat applications, curettage, and massage, show the regular sequence of "negative phase," "positive phase," and "phase of increased resistance" identical with that produced by an ordinary vaccine prepared from the invading organism. I would therefore contend that the changes which take place in these cases are obtained by a process of immunization analogous to vaccine therapy, these changes being the result of autoinoculation. In vaccine therapy we have a natural method of producing immunization with less distress to the patient, with greater accuracy, and, when properly applied, producing better results than other methods. I have been speaking only of localized bacterial infections; in those cases where there is necrotic tissue, or a barrier of much cicatricial tissue preventing access to the lymph, surgical interference must of course be sought.

When in any case of localized bacterial infection it is considered advisable to employ vaccines, it is in the first place necessary to discover what organism may be the exciting cause of the local infection. If only one organism be isolated it is almost certainly the cause, and the vaccine may be straightway prepared; but where two or more are present serious consideration is required to determine whether one or all are responsible for the patient's condition.

In deciding which are the offending organisms in a case of multiple infection, the estimation of the opsonic index to each is of undoubted help. Vaccines of each organism to which an abnormal index is obtained should be administered. Failing this, it is well to employ a vaccine prepared from those bacteria which clinical experience has shown to be the most typical of the lesion. In cases of open infection it is comparatively easy to obtain the offending organisms, and in cases of closed infection the organism may be at times recovered from the urine. Pus that repeatedly gives a negative cultural result is probably tuberculous. Speaking broadly, deep skin suppurations—boils and carbuncles, for example—are, as a rule, due to *Staphylococcus aureus;* superficial lesions, such as eczema, acne, etc., to the *Staphylococcus albus.* Bullous conditions, including onychia, are due to streptococcus. Impetigo usually is due either to a streptococcus, when the lesion appears at first as a flat vesicle and later as a scab, or to a staphylococcus, usually the *aureus*, when there is scab formation from the first. Chronic sinuses, including those arising from a tuberculous lesion, are a favourable habitat for streptococci, which may be often found alone, or in conjunction with staphylococci, or a coliform organism. A white, sodden, eroded appearance round an ulcer or mouth of a sinus is usually associated with the *Bacillus pseudo-diphtheriae*, and this organism is frequently present in, and is sometimes the cause of, otorrhoea.

In bronchitis the usual organisms present are the pneumococcus, Pfeiffer's bacillus of influenza, *Micrococcus catarrhalis*, and diphtheroid bacilli.

In pyorrhoea alveolaris I have invariably found a streptococcus present in every case, and frequently pneumococci or *Micrococcus catarrhalis.*

Any one who has had much experience with vaccine therapy knows how much more prevalent is infection by

the tubercle bacillus than is generally imagined. If suspected in any case, confirmation or the reverse may readily be obtained by the estimation of a few tuberculo-opsonic indices.

In immunization the question of dosage is often most difficult to decide; on it depends whether we get a maximum immunizatory response with a minimum toxic effect or not. If the patient has symptoms of toxaemia—high temperature and rapid pulse—or is anaemic, in other words, has a low resisting power, particularly if his opsonic index is markedly reduced to, say, 0.6 or 0.5, the dose of vaccine should be much smaller than that which would be given to a more robust person, and obviously a small man should, other things being equal, have a smaller dose than a big man.

The opsonic index, taken before and two or three days after inoculation, is a most important guide. In many cases this is not a necessity, but if a case does not improve, the dosage will usually be found at fault, and may be increased or diminished, according to the information afforded from the indices. If, for instance, in a case of boils, a dose of vaccine is followed by increased pustulation, discharge, and pain, with the appearance of fresh crops of boils, and possibly a marked rise in the patient's temperature, or if in a case of *B. coli* infection of the bladder, increased frequency of urination, pain, and irritability follow on inoculation, there has undoubtedly been a marked "negative phase," and it will probably be some days before the tide of rising immunity will set in. In such cases the dose has probably been too large, and must be correspondingly diminished when the next is due; this will be as soon as any improvement that has accrued begins to wane, or, in other words, when the index begins to fall after the rise that should follow the "negative phase." When a dose is followed by immediate improvement, and this improvement lasts but a day or so, being followed by retrogression, it is just to assume that the dose was slightly too small, and it may with advantage be increased. The ideal immunizatory response usually follows a clinical "negative phase" lasting about twelve hours.

With *Staphylococcus aureus, albus*, and *citreus*, and in the case of superficial lesions such as eczema, acne pustulosa, impetigo, and sycosis, a dose of 50 to 100 millions at intervals of six to eight days is suitable. In boils and carbuncles, however, to get the best results, 200 to 250 millions may be given with advantage, followed in three or four days by a dose of 400 to 500 millions, after which the lesion will usually heal rapidly and incipient boils abort. Staphylococcic invasion of small skin abrasions associated with lymphangitis and enlargement of the corresponding lymphatic glands usually yield to one or two doses of 50 to 100 millions of the *aureus* variety, repeated, if necessary, in three or four days.

Streptococci are very toxic, and, as a rule, a dose of 5 to 10 millions is sufficient, to be repeated in eight to ten days. Pneumococcal invasions call for larger doses, 20 to 25 millions, or even more, being usual.

As regards gonococci, in cases of gleet and secondary infections—for instance, of joints, or the pelvic organs of the female, and in cases of "latent" or chronic gonorrhoea in the male—treatment by doses of 5 to 25 millions every six to ten days will often be followed by marked relief. In dealing with a suspected joint, the estimations of a series of opsonic indices before and after autoinoculation produced by massage of the joint will settle the diagnosis. The coliform group are also very toxic, and a dose of 10 to 20 millions is sufficient. The *Bacillus pyocyaneus* furnishes a good vaccine, and I have seen satisfactory results with doses of 25 millions every eight to ten days.

As to tuberculin, this vaccine is undoubtedly the most toxic, and therefore requires far more careful handling than the others; a dose of one ten-thousandth of a milligram is frequently far too large, so that till the effect of tuberculin on the patient is known, it is wise to be satisfied with one twenty-thousandth of a milligram. I have known one fifty-thousandth of a milligram seriously to upset an adult case of tuberculosis of the bladder. The dose of tuberculin should be repeated in from eight to twenty-one days.

The frequency of staphylococcal invasion in diabetes is well known, and I would submit that the glycosuria may be the result, and not the cause, of the lowered resistance to these organisms. In one case at present under my care I have on three occasions found copious glycosuria clear up after the administration of an auto-staphylococcal vaccine as soon as the opsonic index became raised, and now, although the patient has been on absolutely restricted diet, sugar has been absent from his urine for the past four months, during which his index has been kept normal by fortnightly doses of 200 millions. I have under observation three other cases of glycosuria, each of which has improved definitely while under treatment on these lines: all have gained weight, and there has been marked diminution in the output of sugar, and reduction in the amount of urine. They have had no additional treatment, and are on an absolutely unrestricted diet. After a dose of 500 millions one patient, during a negative phase, showed increased output of sugar on two occasions, and this was followed by improvement after twenty-four to forty-eight hours.

In several cases of bronchorrhoea following acute bronchitis in old people, I have isolated a long large streptococcus and *Micrococcus catarrhalis*, and have had excellent results following treatment of these by vaccines. The amount of sputum was reduced rapidly in each case to less than half after the first dose, and in one immediate cure followed one inoculation, after the expectoration had averaged half a pint or more daily for three months. Two cases, aged 72 and 65 respectively, in fat people who were going downhill rapidly with dilated, irregular heart, and who seemed to be drowning in their own secretions, and had failed to make any improvement with treatment for three or four weeks by senega, ammonium carbonate, prunus virginica, and tar preparations, etc., recovered rapidly after being given auto-vaccines.

I would like to record one other case:

A nurse, three years ago, was on the nursing staff of a well-known consumption sanatorium; while there her blood was frequently used as a control for estimating some of the patients' opsonic indices to tubercle. After some time it was discovered that her index had dropped to 0.6, and she was not feeling as well as usual. She left shortly after; no chest symptoms were discoverable. About nine months later she began to develop exophthalmic goitre, and eventually had to give up her work. When she came under my care she had tremor, tachycardia, had lost 14 lb., had marked proptosis, and the thyroid gland was definitely enlarged; all these symptoms were increasing, in spite of rest in bed and treatment for the previous few months. I found her tubercle opsonic index was 0.6, and gave her one-twenty-thousandth of a milligram of tuberculin. This was followed by very definite increase in cardiac distress, and an increase in the size of the neck by 1 in., accompanied by pain in the thyroid gland. At the end of three days she expressed herself as feeling much better than for some weeks, and by the end of ten days the gland had recovered not only the inch enlargement, but became smaller than before the inoculation. I consequently gave her smaller doses, and each time a negative phase was associated with the same aggravation of symptoms, with increase in size and pain in the thyroid gland, benefit following with the positive phase. Her index rose, and with it her general condition improved, and now, after three months' treatment, she has gained over 1½ st. in weight, tachycardia is a rare symptom, the proptosis is almost gone, and the size of the neck is within ½ in. of the normal.

We know that this disease is often followed by extraordinary, almost spontaneous, recovery, yet I think the sequence of events after inoculation is interesting. Single cases such as these, although they are far from proving beyond doubt the bacterial origin of the disease in question, at least warrant a careful investigation, in the hope of elucidating its etiology and treatment.

Diphtheria and typhoid carriers, who up to the present time are an uncontrolled danger to the community, may yet be rendered useful and harmless members of society by vaccine therapy.

The cicatricial contraction which occurs during the healing of extensive burns is probably due to inflammatory changes set up by invading microbes. I would suggest that all cases of extensive superficial lesions, such as burns, ulcerations, etc., should be frequently examined bacteriologically, and that any invading micro-organisms be eliminated by the use of approved vaccines. I have reason to believe that scar production will thus be reduced to a minimum. I have seen a case of extensive ulceration of the skin, where there had been destruction of all superficial tissues, from the ear to the tip of the shoulder and from the spine of the scapula to the clavicle, healed and covered by a beautifully soft and elastic non-shrinking

skin without the aid of grafting, such as has never fallen to my lot to see in cases treated by methods other than therapeutic immunization.

To sum up the results of my experience of vaccine therapy, I have not in a single instance had any reason to regret the application of the method in question; on the contrary, I am fully convinced that in all cases of localized bacterial infection therapeutic immunization, which, as I have pointed out, includes the determination of the flow of opsonized lymph through the infected tissue, gives better results than any other method.

Lastly, I would point out the simple giving of vaccines does not complete the treatment of every case of localized bacterial infection. The patient's opsonic content may be quite high, and yet, as I have already hinted, unless the richly opsonized lymph can, and does, reach the germ-laden tissues, it is practically useless.

THE CLASSIFICATION OF THE SYMPTOMS OF LEAD POISONING.*

BY W. DOWLING PRENDERGAST, M.D., M.CH., M.A.O., D.P.H.

ARMAND GAUTIER has enumerated seventy occupations in which the workman is subject by his occupation to lead poisoning. We have also to consider the fruits of their industry in the materials for our common and everyday use, all impregnated with a salt of lead. From our earliest age we come in contact with the poison. I have in my hand an ordinary child's toy tea set, which in a child of 4 years under my care produced lead poisoning; the child sucked the paint off it. I had another case of a child of 12 months, who was in the habit of sucking the leather covering of its perambulator; the leather on analysis was found to be impregnated with a salt of lead.

Sir Thomas Oliver, in his Goulstonian Lectures, cites the case of an old gentleman whose symptoms were of a puzzling nature; he consulted a leading London physician, who elicited that he was an inveterate snuff taker; the snuff was found to contain lead; when it was discontinued, the patient soon recovered. He quotes another case in which the symptoms were obscure; he noticed that the patient for her age had very black glossy hair, and found that she was accustomed to dye it with a wash which contained a large amount of lead.

A more remarkable series of cases occurred affecting the French navy in 1878, whilst serving abroad. In the first instance the symptoms were attributed to malaria; so grave was the outbreak that the French Government appointed a commission, which found that the outbreak was due to the large amount of lead used in the paint for the internal decoration of the warships. Since that time only zinc oxide paint is used. The use of tinned foods is prohibited as far as possible, and the distillation of drinking water is no longer conducted by lead pipes. The health of the men has since then improved considerably.

In another case I will cite I saw the patient the day before he died; he was convulsed, and showed to me unmistakable signs of lead poisoning. I will quote his wife's evidence at the inquest:

> Dr. A.'s locum tenens called on January 3rd, and told her that her husband was suffering from typhoid. He was treated for typhoid from that day to his death. The witness added that Dr. A. came the following Sunday, and confirmed the diagnosis of typhoid. Afterwards, the sanitary inspector came, and steps were taken to remove him to the Bradwell Sanatorium, but there was no bed there for him. Deceased gradually grew worse, and the following Tuesday he became insensible, and jumped out of bed. He was convulsed from the Tuesday night until his death on Wednesday.

The man's organs were analysed for me by Professor Bedson of Durham, with the following result:

Bottle 1. Containing kidneys and spleen:

Total weight of contents	13 oz.
Total lead present	0.259 grain

Bottle 2. Containing brain:

Total weight of contents	3 lb.
Total lead present	0.176 grain

Bottle 3. Containing liver:

Total weight of contents	4 lb. 3½ oz.
Weight of liver	3 lb. 9½ oz.
Total lead present	0.540 grain

In this case a grave injustice might have been done to the widow, as she received £120 compensation. I quote these cases to show how obscure and difficult it is sometimes to diagnose lead poisoning.

My experience of lead poisoning has been gathered mainly among the potters of this district. Under the Compensation Act any potter suffering from the effects of lead is entitled to compensation, so that from a medico-legal point of view the need of classification is obvious.

In the potting industry the lead used is chiefly the carbonate of lead, and also the silicate—the glaze being composed of the silicate in what is known as the hard material, which is ground at the mill; the soft carbonate is added to this. In the different processes of dipping, ware-cleaning, glostplacing, in the mixing sheds, litho-transfer making, in the colours used in colour dusting, also in majolica painting, lead is evolved in a fine dust. I have on my clinical notes 405 cases of lead poisoning.

170 males, of the average age 37.4 years.
235 females, of the average age 27.6 years.

Occupation.

	No.	Percentage.
Males—		
Glostplacers	76	44.
Dippers	74	43.5
Colour	8	4.5
Not stated	12	7.0
Females—		
Ware-cleaners	89	37.8
Colour dusters	56	24.4
Dippers	34	9.8
Majolica paintresses	23	9.4
Not stated	33	14.4

Symptoms.

Males (170)—		
Paralysis	97	57.0
Totally blind	4	2.3
Partially blind	6	3.5
Vision disturbed	17	10.0
Gastric trouble—colic and vomiting	122	77.6
Epilepsy	29	17.6
Encephalopathy	27	15.0
Blue line	105	61.7
Insanity	1	
Rheumatoid arthritis ...	10	5.8
Gout	4	2.4
Females (235)—		
Paralysis	71	30.0
Totally blind	18	7.7
Partially blind	24	10.2
Vision disturbed	33	14.0
Gastric disturbance—colic and vomiting	161	69.8
Epilepsy	40	17.0
Encephalopathy	82	34.9
Blue line	143	60.8
Miscarriages	97	41.2
Insanity	6	2.5
Rheumatoid arthritis ...	3	1.3

Age.

Males—	
Average age for 68 cases	37.4 years.
Age of the youngest	16 ,,
Age of the oldest	67 ,,
Females—	
Average age for 80 cases	27.6 years.
Age of the youngest	15 ,,
Age of the oldest	53 ,,

Died.

Males	16 = 9.4 per cent.
Females	15 = 6.4 ,,

Two main systems of classification may be made. In the one regard is had to the action of lead on (1) the brain and nervous system; (2) the sensori-motor apparatus, including the voluntary muscles; and (3) on the involuntary muscles, including the vasomotor system. The other system, that which I propose to adopt in cases of lead poisoning, is classified under two main heads: (1) Saturnina mitior, and (2) Saturnina gravior.

* Read before the North Staffordshire Division of the British Medical Association.

I. Saturnina mitior would include the prodromata and the lesser symptoms, namely:

1. Disorders of digestion, such as dyspepsia and constipation.
2. Cachexia.
3. Slight blue line on gums.
4. Slight colic.
5. Anaemia, especially in women, with accompanying symptoms of a minor character.
6. Pains of an undefined character in trunk and limbs.
7. Loss of appetite, and vomiting.
8. Polyuria.
9. Slight albuminuria.

II. Saturnina gravior would comprise:

1. Cachexia and emaciation of a marked character.
2. Acute colic, prolonged.
3. Fetid breath.
4. Paralysis of arms and limbs.
5. Blue line well marked.
6. Acute pains in the head.
7. Disturbance of vision.
8. Tremors.
9. Suppression of urine.
10. Epileptiform convulsions.

From a clinical point of view, lead poisoning presents two aspects: in one the poison enters daily into the system in small doses, and is eliminated by the main emunctories—the liver, the kidneys, and the skin; in the other, the kidneys and the liver are enfeebled from the action of the poison, and lose their eliminating functions, and the poison exerts its baneful powers and produces the major symptoms.

Armand Gautier, in his work *Le cuivre et le plomb*, says that a person may take 100 to 300 mg. without showing any acute symptoms of lead poisoning, but the daily absorption of 8 to 20 mg. of lead will in time result in a serious deterioration of the health. At the Chateau de Claremont 13 out of 34 people were affected with lead poisoning through drinking for a short time water which only contained 1 grain of lead to the gallon.

Again, we have to consider the sex and the idiosyncrasy of the patient. Women are more subject to lead poisoning than men. Their nervous and uterine systems show quickly the effects of the poison; this is shown by the comparative table:

Comparative Percentage.

	Males.	Females.
	Per cent.	Per cent.
Paralysis	57.0	30.0
Totally blind...	2.3	7.7
Partially blind	3.5	10.2
Eyes affected...	10.0	14.0
Gastric disturbance	77.6	69.8
Epilepsy	17.6	17.0
Encephalopathy	15.0	31.9
Blue line	61.7	60.8
Miscarriages	—	41.2

Saturnina Mitior.

If we take an ordinary case of lead poisoning, we shall be able to see the working out of the classification. An individual in good health continues to absorb daily a certain amount of lead, either by the skin, the respiratory or the digestive organs. He first complains of a feeling of malaise, accompanied by digestive disturbances and constipation. A peculiar cachexia is then developed, owing to the destructive action of the lead on the red blood corpuscles. A sweet taste in the mouth is described, and we may then find a slight blue line appearing at the junction of the teeth with the gums. This is Burton's blue line. It is the most diagnostic sign of lead poisoning, and is formed by the sulphide of lead, the lead being acted on by the sulphuretted hydrogen of the buccal secretions. Personally I think the line produced mechanically, the trituration of the food in the mouth forcing the lead salt into the interstices between the teeth and the gums. If there be no teeth there is no blue line; if there be a marked blue line the "*plaques tatouées*" of Gubler, the tattooed marks on the buccal mucous membrane will be observed. I have always found them present with erosion from a decaying molar tooth. The line may not exist in some cases where lead is not absorbed by the mouth; still, if it is not indicative of lead poisoning, it is the finger-post which directs us to the fact that the individual has absorbed lead in some form or the other. There is no other drug or poison which shows this blue line; carbon may show a black line and copper a green one.

Slight colic is one of the first and most frequent symptoms complained of. It was originally called colica Pictonum, a name derived from a district in France, where wine was made and stored in earthenware receptacles, glazed with galena, or alquifoux—a soft glaze, the earliest of all glazes known to the potter. The wine dissolved the lead in the glaze, and people drinking the wine contracted colic or intestinal cramps. This symptom is complained of in saturnina mitior, but the great nerve centres are not involved.

One other symptom which marks lead poisoning in its early stages is anaemia. Lead has a very destructive action on the red blood corpuscles. Sir Thomas Oliver says: "I have never found the normal number of red corpuscles in a lead worker." Zinn says that the haemoglobin is decreased 50 per cent. Oliver puts it at 45 per cent. to 50 per cent. of the normal. In a paper lately published by him, Kenneth Goadby quotes 10 cases of lead poisoning in which the red blood corpuscles varied in each case from 3,768,000 to 1,334,000, the normal being about 5,000,000. He described a granular condition of the red corpuscles, indicating a destructive tendency. There is no doubt that the uneliminated lead, circulating in the blood, has a most deleterious effect, and is deposited here and there in the tissues. In women lead workers we find in saturnina mitior very often menorrhagia, the symptoms of a minor character being dyspnoea and palpitation. Pains of an undefined character are also complained of, sometimes in the muscles, but more often in the joints. I have found these pains to be due to the amount of uric acid circulating in the blood, for it has been proved that lead favours the retention of uric acid, so much so that Sir William Roberts has described the condition as one of uratosis.

Polyuria and albuminuria are amongst the earliest symptoms we have to deal with. Lead seems to act as an excitant to the kidney cells, at first in saturnina mitior; the albuminuria is of a transient character. The increase in the quantity of urine is marked, the lead being eliminated in the urine, as can be proved by analysis. Bouchard found the urine of a patient in the early stages of lead poisoning to be highly toxic on injection. He again injected the urine when the patient was suffering from the epileptiform convulsions of saturnina gravior, and he found that it had lost this toxic property. Oliver describes a parenchymatous nephritis which as the poisoning advances finally changes into an interstitial nephritis. These are the stages of saturnina mitior as I would classify them.

Saturnina Gravior.

If the individual still continues to absorb lead in minute quantities the system becomes more enfeebled, and the liver and kidneys cease their eliminatory functions. The cachexia which is characteristic of lead poisoning then develops. The countenance assumes an ashen grey colour, different from that seen in the anaemia of the ordinary or pernicious type. Through faulty nutrition the emaciation is marked.

A further stage is marked by the onset of acute colic, the pain being severe and prolonged. This colic, in my opinion, is due to a perverted peristalsis. In health the peristaltic action of the intestines is of a rhythmic character, and goes on unnoticed. The intestines with their circular and longitudinal fibres have the plexus of Meissner between them to carry on and control this rhythmic action. Writers describe this continuous spasm of the intestines in lead poisoning as in parts nearly of the nature of an intussusception. The sympathetic and splanchnic centres become involved, with consequent excessive action of parts of the intestines, without due

correspondence of the parts correlated. The existence of this excessive and perverted peristalsis is proved by the facts that pressure mitigates the pain, and that it is stopped by full doses of opium, which inhibits the peristaltic movements of the intestine. Suddenly, following these acute attacks of colic, we may find the patient paralysed. The paralysis may attack any part of the system, but it is most marked in the forearm, producing the dropped hand of lead poisoning, caused by the paralysis of the extensor muscles of the forearm, the supinator longus, singular to say, remaining intact. The muscles retain voltaic and galvanic, but lose faradic, irritability. Why the flexor muscles and the supinators are not attacked by paralysis is the paradox of lead poisoning. Very often paralysis of the Duchenne-Erb type develops, the deltoid and its corresponding group of muscles being attacked. The muscles of the legs often suffer, the lead selecting the extensors by preference. As to whether this paralysis is central or peripheral, I would observe that we know of two degenerations of nerve tissue—the Wallerian, where the centres are involved, and the other, where the axes cylinders are attacked. Erb and Remak state that the degeneration is Wallerian. In my opinion the degeneration is peripheral, and my reason for making this statement is, a few years ago I selected 50 of my worst cases of lead paralysis, and sent them to Dr. Auriol Armitage, of Wolverhampton, for electrical treatment. Dr. Armitage read the results in a paper to the British Medical Association. Remembering what helpless cripples these patients were, the effects of the treatment were marvellous: 75 per cent. of the paralytics were cured, while 47 out of the 50 were much benefited. The duration of treatment varied from three weeks to three months. I do not for a moment think that these beneficial results could have been obtained if the centres had been involved, as in tabes and infantile paralyses, for example.

The blue line deepens in colour, and in some cases the *plaques tatouées* of Gubler may be seen marked on the buccal mucous membrane. Abortion is prevalent amongst the married women, who work as ware-cleaners, dippers, colour dusters, or litho-transfer makers, ground layers, majolica paintresses. Lead is frequently used in the Potteries as an abortifacient, the ordinary diachylon being scraped off and used in the form of pills. A patient I attended took twenty-four of these pills at once, with for her very happy results.

M. Paul, who has investigated this subject, says that women who work in lead frequently abort. In 123 pregnancies of lead workers, 73 children were born dead. Of these, 64 were abortions, 4 premature births, and 5 full time. Of the 50 born alive, 20 died in the first year, 8 in the second, 7 in the third, and only 14 reached the age of 10 years. Sir T. Oliver also says that lead workers miscarry in much larger proportions than other women. This has also been my experience. Unfortunately I did not segregate the married from the single women on my list, but I find I have a series of 97 abortions, one woman having had as many as 12.

I have mentioned the destructive action of lead on the blood and its consequent interference with the ovarian, the uterine, and nervous functions of a woman; we can therefore easily understand its abortive powers.

Tremors are often complained of as a later symptom of lead poisoning. The kidneys, after undergoing parenchymatous degeneration, are further attacked; Bowman's capsule becomes thickened and laminated, the capillaries in the glomeruli being distended with blood cells. The cells lying between the coils of capillaries undergo extensive proliferation, and are finally destroyed with an extensive production of connective tissue. A true interstitial nephritis is thus produced and causes atrophy of the kidneys.

At a *post-mortem* examination made with Dr. R. Alcock on a case of chronic lead poisoning it was difficult to find the kidneys; we eventually found two small atrophied organs, one weighing $2\frac{1}{4}$ oz. and the other $2\frac{3}{4}$ oz. In such cases the urine is suppressed and the gravest symptoms of lead poisoning ensue, ending in acute mania, blindness, epileptiform convulsions, and death.

Disturbance of vision is a common symptom of lead poisoning. The ordinary symptoms of anaemia and amenorrhoea being present, headache of a severe type is complained of, and suddenly either a partial loss of vision (amblyopia) or a complete loss (amaurosis) ensues. I find, amongst the 235 women in my list, 75 had their eyes affected: 18 were totally blind, 24 partially blind, and 33 had disturbed vision. All these cases might be diagnosed as suffering from optic neuritis. I agree with Leber and Deutschmann that lead in the blood acts as an irritant and causes an increase of fluid in the subarachnoid spaces, this fluid increase being conveyed to the vaginal sheaths surrounding the optic nerve. All writers on lead poisoning—Oliver, Swanzy, Leber, Deutschmann, and others—describe an engorgement of the retina, the veins being swollen and enlarged and the arteries contracted, finally ending in atrophy of the disc.

Epileptiform convulsions generally mark a grave stage of lead poisoning; they were well marked in the man the inquest on whom I quoted at the beginning of this paper. Lancinating pains in the head are complained of, and the urine is suppressed. These convulsions may be either uraemic, or cerebral due to an increase of fluid in the brain ventricles. The convulsions are of a mixed character; the patient is very violent, and if not restrained may jump from his bed. After lasting a few hours, or in others a few days, death ensues.

In 1854 Garrod brought forward his theory that lead poisoning is productive of gout; this has since then been given an accredited place in our textbooks. I am not a believer in Garrod's theory. Out of my 405 cases I find only 4 afflicted with gout. One of these had a family history of gout; the other three were excessive beer drinkers. In the Potteries the male lead workers consume large quantities of beer, no doubt on account of its action on the kidneys and bowels; among these men we should find gout, but we do not. I have never seen a case of gout in a female lead worker. I hesitated to bring forward these ideas in contradiction to such an authority as Garrod without further proof, and wrote to Sir Thomas Oliver asking his opinion, and received the following reply:

> We do not see gout associated with lead here, except on the rarest occasions; when I have there has generally been a family tendency to gout, but cases of plumbism are probably too acute to favour the development, and it is just possible, too, that the beverage drunk by the lead workers does not encourage gout; and yet in the London hospitals the association of the two is said to be common. Under any circumstances gout is not common here as indicated by attacks of pains in the big toe, etc. We get plenty of degenerated arteries, but from other causes than gout. My experience confirms your own: I cannot recall a case of gout in a female lead worker.

PLUMBISM TREATED BY THE INTERNAL ADMINISTRATION OF CALCIUM PERMANGANATE.

By G. ARBOUR STEPHENS, M.D.Lond.,
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Last year I drew attention in the British Medical Journal to the value of calcium permanganate in the treatment of gastritis and enteritis—that is, in inflammatory conditions of certain parts of the alimentary tract.

In the Journal of March 12th, 1910, I pointed out the origin of the lead line on the gums as being due to the deposit of lead in the form of the sulphide on a pre-existing red line, which was caused by irritating particles in the atmosphere in which the men worked. This red line is undoubtedly an inflammatory effect, as shown by the enlarged and engorged papillae on the edge of the gum, and it is an inflammatory line that occurs at the anterior or upper end of the alimentary tract.

As I found calcium permanganate to be of value in inflammation of other parts of the alimentary tract, I thought it worth while to test whether it would be of value also with this inflammatory line on the gums, and at the same time with the lead line.

Case I.

The first patient to whom I administered the drug was a man, W. E., aged 38, whom I saw for the first time on July 20th, 1909. At that time he complained of pains in the arms and legs, and of inability to lift the "rabble" at his work. He had a marked lead line, and the test for potassium sulphocyanide gave a very slight reaction. Paralysis was not present, but there was some tenderness over the lower third of both sciatic nerves.

This tenderness, I may say, I have found present in several patients suffering from plumbism, though I would not like to go so far as to say that this form of sciatica is pathognomonic of plumbic poisoning.

The next time I saw him was on February 14th, 1910, when in addition to the above signs I found both wrists somewhat weak and suggestive of plumbism. With the permission of his medical attendant I prescribed calcium permanganate, ½ grain, three times a day; after fourteen days I found that the lead line had disappeared, as well as the sciatic tenderness, while the wrists were decidedly stronger.

CASE II.

C. F., aged 54, a mason, constantly employed at lead works, especially for repairing the culverts along which the fumes travel, fractured his clavicle, but this by December 13th, 1909, when I saw him for the first time, had healed well. He had a lead line and was very anaemic, but there was no other sign or symptom of plumbism present. I ordered calcium permanganate, ½ grain, mixed with paraffin, and put up in the form of capsules by Messrs. Allen and Hanbury. This method of administration does away with the disagreeable taste of the drug, and it also allows its action to be gradual.

At the end of three weeks the lead line had disappeared and his appearance had distinctly improved, the anaemia having nearly disappeared.

CASE III.

J. P., aged 35, who had been fifteen years at the lead works, was very pale and both wrists were rather suggestive of plumbic weakness. There was a lead line on the gums and also a dark deposit on the mucous membrane of the lower lip.

After three weeks' treatment with the drug (in capsules) the lead line disappeared, and there was a considerable diminution of the dark deposit on the mucous membrane. The pallor, which at first was marked, became gradually less, and eventually he developed quite a healthy appearance, while the wrist weakness also disappeared. He observed that the drug had the effect of causing his bowels to act three times a day, instead of twice. All the deposit disappeared by the end of five weeks.

CASE IV.

F. S., aged 31, whom I saw on June 9th, 1909, had to give up work on account of "wrenched back." There was tenderness over the lower third of the sciatic nerves; he also had a lead line, as well as a line of black tartar. After taking calcium permanganate for fourteen days, the lead line disappeared, leaving the black tartar line, which only required the use of a toothbrush.

CASE V.

J. W., aged 40, was pale, and the wrists suggested plumbism. The saliva gave a very slight reaction in the test for potassium sulphocyanide.

After three weeks' treatment the lead line was very much less, the wrists better, and the potassium sulphocyanide reaction much more satisfactory. The man's alcoholic habits considerably interfered with the treatment in this case.

Several other cases have responded to the treatment in such a satisfactory manner as to emphasize the value of calcium permanganate in the treatment of cases of plumbism.

The drug should in all cases be given in capsular or palatinoid form, as otherwise it has a tendency to nauseate the patient, and terminate the treatment somewhat abruptly.

On reflection the good result is not surprising, for the drug has been found, not only by myself but also by many other medical men, to be of great value in inflammatory states of the alimentary canal, and my original observation that the lead line is superimposed on a red line is, I venture to think, corroborated by the result of this treatment.

In addition I would draw attention to the fact that the alcoholic habits of the men employed at lead works, together with the usually foul state of the mouths and teeth, are more than likely to result in an inflammatory state of the stomach, on to which inflamed area the lead, as in the case of the gums, is more than likely to find its way and settle.

Calcium permanganate being of value in gastritis acts therefore in the nature of a preventive, and if my results are corroborated it is worth while considering whether it will not be advisable in the future to order the periodic administration of this drug to all the men at the works.

THE French Chamber of Deputies has passed a law giving communes, or portions or groups of communes within whose area there may be mineral springs, power to constitute themselves, after permission obtained from the Government, hydromineral or climatic stations. For the maintenance and development of these stations the communes may be empowered to levy special rates during a season or the whole year. On these rates they may be authorized to raise loans for the purposes indicated.

THE CAUSES OF ABSORPTION OF OXYGEN BY THE LUNGS.

BY

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and J. S. HALDANE, M.D., LL.D., F.R.S., FELLOW OF NEW COLLEGE, OXFORD.

(PRELIMINARY COMMUNICATION.)*

IT has for long been a subject of controversy among physiologists whether the absorption of oxygen through the walls of the lung alveoli into the blood occurs simply by diffusion or by an active physiological process analogous to glandular secretion.[1] Pflüger, Fredericq, and, quite recently, Krogh,[2] have brought forward experimental evidence in favour of the diffusion theory, while Bohr, and Haldane and Lorrain Smith have supported the secretory theory, which was originally suggested by Ludwig.

If the partial pressure of oxygen is ever greater in the arterial blood leaving the lungs than in the air of the lung alveoli, it is clear that the simple diffusion theory must fall to the ground; and the experiments hitherto made have been designed to ascertain whether or not the oxygen pressure in the arterial blood is ever greater than in the alveolar air. Bohr, Fredericq, and Krogh have with this object employed improved forms of Pflüger's well-known "aerotonometer," the instrument finally devised by Krogh being very perfect of its kind. Haldane and Lorrain Smith's method depends upon the following facts: When blood is brought into prolonged and intimate contact with a mixture of carbon monoxide and air the haemoglobin of the blood corpuscles combines partly with the oxygen and partly with the carbon monoxide, the final proportions (which can be easily and accurately determined) depending, in accordance with the laws of mass action, on the relative partial pressures of the oxygen and carbon monoxide, and on a constant. Hence, if the final proportions, the constant, and the partial pressure of the carbon monoxide are known, the partial pressure of the oxygen can be accurately deduced. By supplying to an animal air containing a fixed proportion of carbon monoxide, until the final saturation of its haemoglobin with carbon monoxide is reached, the partial pressure of oxygen in its arterial blood can be calculated on the same principle. If the arterial oxygen pressure is greater than that of the alveolar air, the final saturation of the haemoglobin with carbon monoxide will be less than that of blood saturated with the same air outside the body and vice versa. It is, of course, assumed that carbon monoxide diffuses freely through the body, since, apart from its property of combining with the haemoglobin, it is, as was experimentally shown by Haldane, a physiologically indifferent gas, like nitrogen or hydrogen.

Haldane and Lorrain Smith determined the constants required in their calculations, not from experiments at body temperature on blood from the animals experimented on, but on dilute blood solutions or undiluted human blood. This omission, which in the then existing state of knowledge did not seem important, has, we find, seriously affected their estimates of the oxygen pressure in the arterial blood. The constant varies distinctly for the blood of different animals, and even for different individuals of the same species. We have therefore repeated the experiments, using mice, on which most of Haldane and Lorrain Smith's experiments were made, and determining the constant for the blood of each animal experimented on. We find that in general their estimates of oxygen tension were about a third too high. We have also supplied an omission in their experiments by investigating the arterial oxygen pressure in animals breathing a very low percentage of carbon monoxide (less than 0.02 per cent.), so that no physiological disturbance is produced by the gas.

Our results with mice are as follows:

1. When a very low percentage of carbon monoxide is breathed, so that no want of oxygen is produced in the body, the arterial oxygen pressure is slightly *below* the alveolar oxygen pressure. Apparently, therefore, the absorption of oxygen is by diffusion alone, as indicated by the experiments of Fredericq and Krogh and by most of Bohr's experiments.

* Communicated to the Royal Society, March, 1910.

The results agree closely with Bohr's recent calculations of the arterial oxygen pressure which might be expected during rest if diffusion alone were in play.

2. When a much higher percentage of CO is breathed (0.2 per cent. or more) the oxygen pressure in the arterial blood rises to nearly double that of the alveolar air, and considerably above that of the external air. With intermediate percentages of CO there are intermediate rises in the arterial oxygen pressure.

It is thus evident that, although under normal resting conditions absorption of oxygen occurs only by diffusion, want of oxygen in the tissues of the body brings into play a supplementary secretory activity by which oxygen is *actively* absorbed from the alveolar air into the blood. This process is presumably analogous to that by which oxygen at a partial pressure of sometimes as much as 100 atmospheres above that in the sea water is secreted into the swim-bladder of deep-sea fishes.

It is satisfactory to find that the results by the carbon monoxide method agree closely with those hitherto obtained by the aerotonometer method. The reasons why Fredericq and Krogh have obtained no evidence in favour of the secretion theory are also evident. Still more satisfactory is it to find that the process of absorption of oxygen by the lungs is regulated, just as is the breathing itself, in accordance with the physiological requirements of the organism. But for the secretory process the blood would be very incompletely saturated during muscular work, when five, or even ten, times as much oxygen is absorbed as during rest. During rest, on the other hand, the secretory process is not required, and would be a waste of physiological effort.

REFERENCES.

[1] A comprehensive account of this controversy is given by Bohr in Nagel's *Handbuch der Physiologie*, vol. i, p. 142, 1905. [2] Skand, *Archiv für Physiologie*, vol. xxiii, pp. 179-278, 1910.

AUSCULTATORY FRICTION:

A LITTLE-USED METHOD OF PHYSICAL EXAMINATION.

By HERBERT H. BROWN, M.D., F.R.C.S.,

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OLD students at University College Hospital will well remember the four methods of physical examination: "First, inspection; secondly, palpation; thirdly, percussion; fourthly, auscultation." To this a fifth should be added, which, for want of a better term, may be called "auscultatory friction" or "auscultatory percussion."

It is a common practice with physicians to make use of a method of auscultatory percussion in mapping out the stomach. By placing the stethoscope over the stomach and tapping lightly with the finger a hollow sound is conducted to the ear as long as the percussing finger and the stethoscope are over the area where the stomach is in contact with the body wall. If the stethoscope is shifted away from this area, the sound becomes notably diminished in intensity, and the same thing occurs if the stethoscope remains in contact with the stomach area and the percussing finger moves off it. In this way it is possible to map out with considerable accuracy the area of a hollow viscus, such as the stomach.

But it is especially in dealing with solid organs that auscultatory friction is so valuable. Information may be obtained in this way which no other method of physical examination can elicit. So far as I know, it is not taught in the medical schools, and is not practised by the generality of practitioners.

By percussion it is only possible to define the outlines of a solid or fluid in contact with a viscus containing air, but by auscultatory friction it is perfectly easy to determine the outline of a solid organ in contact with another solid or with fluid.

For instance, in percussing the heart, the lower margin where it rests over the liver cannot be defined, but auscultatory friction readily shows this. Also to mark out the spleen when there is a pleural effusion on the left side is impossible by percussion alone, and can only be done by the combined method. Again, a pleural effusion of limited extent on the diaphragmatic surface of the right lung is easily overlooked if percussion alone is relied upon; the dullness of the liver is continuous with the dullness of the fluid, and one cannot tell where one begins and the other ends, but by auscultatory friction a sharp line of demarcation between the liver and the fluid is readily obtained.

It is obvious that it is important to practise a simple and easy method by which such information is available.

Some five or six years ago I found that by placing the chest-piece of a binaural stethoscope or phonendoscope over the liver or the heart, and gently rubbing the skin in the neighbourhood with the tip of the finger, a loud sound was conveyed to the ear as long as the finger was over the solid organ; as soon as it passed off the area which covered the organ the sound became almost inaudible, the solid organ under the abdominal wall acting as a stethoscope in conveying the sound to the ear. If the stethoscope is placed over the liver, and gentle friction made with the tip of the thumb, the upper limit of the organ can be defined with the greatest accuracy, even when a layer of fluid is above it, or another solid organ, such as the heart. If the stethoscope is placed over fluid, such as a pleural effusion, the sound becomes lost when the finger passes over a solid or air-containing organ.

I thought at the time I had made an important discovery, but I have since found that the method had already been described and practised. Sir Lauder Brunton tells me that he has made use of it for at least ten years, but agrees with me that it deserves wider recognition.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TREATMENT OF TUBERCULOUS MENINGITIS.

IN his most interesting lecture on Meningitis in Children, Dr. Guthrie Rankin, in speaking of the tuberculous form, says, "Cases of recovery are so rare that many observers believe the disease to be invariably fatal."

Many years ago I was asked to see a little boy in the second week of tuberculous meningitis. As he was extremely emaciated and profoundly anaemic, a mixture containing potassium chlorate, tincture of ferric chloride, and glycerine was prescribed. The chlorate was given in the somewhat empirical hope that it might somehow yield oxygen to the tissues. The mixture was steadily continued for three or four weeks. An improvement was almost immediately evident, and the child eventually made a good recovery, although his head remained slightly but distinctly enlarged. I have always felt convinced that the boy owed his recovery to the potassium chlorate. I have never since had an opportunity of trying it in tuberculous meningitis, and I only venture to mention the case now in the hope that some one else may be induced to give this mixture a further trial.

G. H. YOUNGE, F.R.C.S.I.,
Lieutenant-Colonel, R.A.M.C. (R.P).

HAEMOPHILIA IN A FEMALE.

THIS condition is, I think, sufficiently uncommon to be recorded. I merely give the history of the child itself; I could obtain no family history of haemorrhages (except from the lungs in members of the parents' families known to be phthisical) on going back two generations beyond the parents.

Born December, 1907. At birth brown patch over left eye, which cleared up in a few days, showing disease, probably congenital. Mother often noticed that the child easily bruised on falling.

December, 1908. Sharp attack of bronchitis with melaena, much blood being lost.

Spring, 1909. Severe haemorrhage lasting three to four days from mere scratch on finger.

April 9th and 16th, 1910. Bleedings from mouth, on both occasions stopping spontaneously.

April 18th. Further attack of bleeding from two points in mouth, death ensuing.

Child well nourished, had had a liberal and varied diet. No history of swollen joints, or suggesting purpura; no signs of scurvy. One brother, showing no disposition to haemorrhages.

Reading. E. W. SQUIRE, M.B., B.S.Lond.

Reports
ON
MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

GYMPIE HOSPITAL, QUEENSLAND.

THREE CASES OF SUBPHRENIC ABSCESS.

(Reported by W. SIDNEY SWEET, B.Sc., M.D., B.S.Lond., M.R.C.S Eng., late Medical Superintendent and Resident Surgeon.)

THESE cases were chosen on account of certain special features. Thus the first indicates that a subphrenic abscess may originate from an infection of the influenza bacillus at the time of parturition, and also illustrates the negative value of aspiration as pointed out very fully in the classical lecture on the subject by the late Mr. Barnard. It shows how prolonged these cases may become if tided through the acute period, and what miraculous conditions may be met with in the abdominal cavity compatible with life. Thus the first patient lived for four weeks with a canal of pus slowly extending from the uterus up along the descending colon, around beneath stomach and liver, and thence downwards on the inner side of the ascending colon, with the intestine and all the organs in the pelvis and above matted together with adhesions. The second shows how a favourable termination may result after much damage done, resulting from an abscess which probably originated from gall stones in the right hypochondrium, extended across between stomach and liver (later perforating into the stomach), and passed down along the descending colon, and was opened in the left loin. The third illustrates the difficulties of diagnosis in a rapid fulminating case in which subphrenic abscess was suspected from the first but convincing signs were absent until late. It also shows the hopeless nature of the case from the point of treatment, as there were multiple abscesses in the liver, and, incidentally, the result of neglect of surgical treatment in gall stone cases.

CASE I.

Sarah N., aged 23, married and expecting to be confined, had an attack of diarrhoea and abdominal pains, with headache, vomiting, and pains in the limbs. This was during an epidemic of influenza, and patient thought she had contracted the complaint. This lasted two days, and on the third, after a very short labour (one and a half hours) a full-term child was born. She was attended by a midwife. The diarrhoea continued, and at night she had a shivering fit. Next day she was hot and cold by turns. After remaining in this condition for two days she was seen by a medical man, and sent to the hospital. On admission the patient—a well-developed and well-nourished young woman—had a temperature of 101.8°, pulse 130, good tension, and respirations 36. The tongue was dry and furred. The abdomen was moderately distended, uterus enlarged up to within 1½ in. of the umbilicus (normal position for third day), firm and hard, well contracted, moderately tender on examination, but more tender on either side over the appendages. Lochia only slightly offensive, red in colour. Vulva normal, no tear. Cervix soft and patulous, and shreds could be felt with the finger within the canal. Temperature at night 103°. She slept fairly well after a hypnotic. Next morning her temperature fell to 98°, and pulse to 116. The following night she was very restless, and pulse and temperature rose again. Next morning she was looking and feeling worse after a sleepless night, and the uterus was more tender. The lochia were more offensive, and it was decided to curette. This was done without an anaesthetic after a hypodermic injection of morphine. The cervix was found to be soft, devoid of mucous membrane, and covered with superficial ulcers and one moderately deep one. When sponged it had the raw appearance of healthy granulation tissue. A small swab was carefully introduced into the uterus from a sterilized tube for bacteriological examination, and a smear preparation made. The interior of the uterus was then curetted with a sharp, broad-ended curette. Several fragments of placenta and membranes were removed and subsequently identified microscopically (decidual cells and chorionic villi, etc., present). The uterus was then wiped out with sterilized gauze and the whole surface swabbed well with pure cyllin on gauze swabs. It was then packed with iodoform gauze. The ulcers of the cervix were treated with pure cyllin also, and the vagina cleansed. This treatment proved most efficacious, and there was no smell or further trouble from the uterus—the infection had passed beyond it.

On bacteriological examination the smear showed short bacilli, often in pairs, and with polar staining identical in appearance with Pfeiffer's influenza bacillus, and although pus cells were seen in numbers no pus cocci or other organisms were present.

At night the patient complained of severe pain in the left side and beneath the breast, and scarcely slept at all. At 8 a.m. next morning I received an urgent call from the nurse. The pulse was very wavy and feeble, and could only just be detected. Stimulants were given, and hypodermic injections of strychnine and digitalin. The pulse improved temporarily. Saline solution was given by the rectum, and two hours later 3 pints of saline subcutaneously. This was repeated during the day. At night the respirations ran up to 70, and the left side of face became flushed. Next morning fine crepitations appeared at the left base, and a patch of tubular breathing in the seventh space in the mammary line. She was now having a regular quantity of stimulant. On the following day she became still worse, and her friends were sent for. Hypodermic medication was continued, and she slowly began to mend. The temperature became normal, and on the eighth night she slept all night. In the interval a patch of bronchial breathing appeared on the right side with pain, and the adventitious signs on the left side cleared up and the dullness at the left base was less apparent. Loose stools with mucus were still being passed, but the uterus was involuting at about the normal rate, and no severe pain or tenderness was complained of in the abdomen. On the twelfth day a pleural exudate appeared at the left base but did not extend beyond the lower third of the lung. At the end of the second week her general condition was much improved, and she was taking food well, but her temperature showed signs of rising again. The uterus was no longer tender.

The next development was pain on passing urine, followed by retention of three days' duration, then meteorism, pain on deep pressure all over the abdomen, and other indications of visceral peritonitis. This continued up to the nineteenth day, when vomiting commenced and lasted for forty-eight hours. There was then tympanites all over the abdomen, but more marked in the epigastric region. The liver dullness began at the fifth space, and continued barely two spaces when the note became tympanitic. In mid-axilla the liver dullness extended lower down, but rose higher when the patient was turned on to the left side. The conclusion was irresistible that there was gas and probably pus in the peritoneal cavity. A small incision was made in the eighth left space, under local anaesthesia, and aspiration tried at various depths up to 4 in. The trocar was pushed slightly backwards and downwards, but no pus or serum was obtained. The left side was chosen because the signs had been more marked on that side all along, and there was still dullness at the left base and pain in the left hypochondrium on deep pressure. The conclusion was that pus had tracked up the left side towards the epigastrium, and events proved this to be correct, but at the time it was discounted by the negative result of the aspiration. The leucocytic count did not help much; it was about 10,000.

I would like to prognosticate here that in the near future new signs will be observed which will render the diagnosis of these cases much more definite and certain. There is not enough stress laid upon the value of auscultatory percussion. Chinking percussion is a useful sign, and very suggestive of free fluid and gas in the abdominal cavity. Another sign sometimes found when there is a localized collection of pus along the ascending or descending colon is a dullness in the flank, which changes to a tympanitic note when the patient is turned on to the opposite side, but does not return to its former dull note when the dorsal position is again assumed, the note now being *intermediate* in quality. Deep tenderness is more constant than superficial tenderness. As the patient's life in these cases depends upon the early recognition of the exact nature of the case, *any* advance in the recognition of physical signs must be a distinct advance in treatment, and result in a lowering of the mortality rate, which is still far too high. Any slight sign, therefore, which just weighs over the balance of the diagnosis will be a very definite gain.

All these signs appeared about this time in this case; the vomiting continued at intervals, and on more than one occasion lost its bilious colour, assuming a creamy appearance. On the twenty-fifth day it was noticed that the breath had a purulent odour, but there were no fresh signs in the lungs. The abdomen was tympanitic and uniformly distended. She was now sleeping fairly well. On the following day a swelling was noticed in the right leg, the foot and leg were oedematous, and the calf very painful on gentle pressure, and two days after oedema appeared in the left foot. On the next day—the thirtieth after admission—she complained of severe pain in the abdomen, which frightened her very much. On examination there was considerable distension of the coils of small intestine, and a turpentine enema gave complete relief. The urine now began to dribble away. On the night of the thirty-first day the pulse became very rapid (150) and feeble, and she died at midnight, quite conscious to the last.

Post-mortem Examination.—On opening the abdomen there was a considerable escape of gas. Thick, dense adhesions between omentum and parietal peritoneum. Omentum matted over and adherent to small intestine. Very dense and thick adhesions below the umbilicus. On breaking through these there

was a collection of dirty brown fluid, which had gravitated downwards from a perforation in the stomach and collected over the small intestine. Some of this was localized here by dense adhesions, but the rest had filtered down into the upper part of the pelvic cavity. The right lobe of the liver was adherent to the parietal peritoneum by firm adhesions, and there were adhesions between liver and stomach. There was another localized collection of pus in a channel on the left side, extending down towards the sigmoid from the *spleen*, and this channel was continuous with that beneath the stomach, but dense adhesions separated the two at intervals. The *liver* was enlarged but normal on section. The *spleen* was one and a half times its normal size, with a much congested lower pole, where it was attached by a thick adhesion to the parietal peritoneum. There were no infarcts, and the pulp was moderately firm on section. The *stomach* was much enlarged, so that the pyloric end was well to the right of the middle line. Near the pylorus and in the anterior and lower part was a *perforation* ½ in. in diameter. It was funnel shaped from without in, and all the coats were adherent at the margin. It appeared to have perforated *into* the stomach lumen. There was a ring of congestion and adhesions around it. There were dense adhesions in the pelvic peritoneum and that over the uterus, and tubes and small intestines was covered with shaggy lymph with small collections of pus between. *Uterus* about the size of a six weeks pregnant uterus. Cavity free from exudate. Tubes not enlarged. *Appendix* quite healthy. *Heart* practically normal, but increased fluid in pericardium. *Lungs*:—Left: Dense adhesions lower part; some thick creamy pus at base in pleura; base consolidated but resolving; a small collection of creamy pus superficially half-way up lower lobe. Right: A few adhesions and congested.

At the *post-mortem* examination a needle was passed through the aspiration wound in the direction of the original aspiration. It passed through the pleura immediately below the lung and into the phrenico-colic ligament, being separated by only about ⅛ in. from the pus canal.

Nothing, therefore, could be more misleading than the aspiration in this case, and although everybody knows that a negative aspiration does not mean the absence of pus, when the facts are being carefully weighed in the formation of a diagnosis this point may just turn the balance, and the treatment be changed accordingly.

Case II.

Charlotte A., a married woman aged 45, was first seen by a doctor two weeks before admission, and her case diagnosed as gall stones. Operation was suggested then, but she improved temporarily. A year ago she had several attacks of pain and vomiting. She had had jaundice once many years before. On admission her chief complaint was of pain in the *left* iliac region, which she thought was due to straining while vomiting. She looked fully ten years older than her age. She vomited bile on admission. Her temperature was normal and pulse 96. The abdomen was moderately distended and tympanitic, indefinite resistance in the right hypochondrium, but no jaundice. There was a patch of tubular breathing in the third left interspace in front. Next day there was tubular breathing and bronchophony at the left base, left-sided pain, and a temperature of 102°; then absent breath sounds at both bases; no vocal resonance over the lower half of both lungs, dullness over the lower two-thirds, and crepitations at right inferior scapular angle. Following the basal pneumonia and pleurisy, a gradually growing oedema and discoloration of the skin in the left flank appeared, with much pain and marked tenderness, followed by pain, often very severe, in the left leg and back of knee, with tenderness along the sciatic nerve. The lung signs resolved, and the abdomen became more distended. There was much pain now at one particular spot in the left loin, but no definite fluctuation. The temperature was remittent, but did not rise above 100°, and was often subnormal, while the pulse ranged between 96 and 120. She had restless nights. An incision was made under chloroform in the ward over the tender area, and a very large quantity of pus evacuated (two kidney trays full). On exploring with the finger a large abscess cavity was found following the course of the descending colon, apparently extraperitoneal, and extending down into the pelvis. On irrigating the cavity with sterilized water several large sloughs were washed out. A large drainage tube was put in and stitched to the skin. A bacteriological examination of the pus showed pneumococci, *Bacillus coli*, and numerous other bacilli. The patient had to be changed twice within a few hours on account of the abundance of the discharge. The thick dressings were saturated, and the sheet. The following day, after irrigation, she complained of nausea, and then vomited one and a half pints of matter containing blood. For the next two weeks she remained in a serious condition, the pulse keeping at 120 for days and the discharge of pus soaking through the dressings. Then she rallied, the discharge lessened, the cavity got smaller, and the tube was correspondingly shortened. On the fortieth day from admission she complained of pain in the right side of the sacrum, and the temperature rose to 102 6° F. A small local swelling appeared without discoloration and then subsided. Her convalescence was very slow and protracted, and she did not leave the hospital until the eighty-ninth day. The wound was quite healed and sound. A month after she sent a message to say she had not been in such good health for years.

In this case it is impossible to state with accuracy the exact path followed by the abscess. All we know is that it commenced in the right hypochondrium, passed to the left, infected left and right pleural cavities and lungs in turn, and perforated into the stomach, being partly discharged by the mouth after being opened in the left loin. The abscess must have been a very extensive one. The final result was, therefore, very gratifying.

Case III.

Helena S., a married woman aged 45, was admitted complaining of drowsiness, listlessness, and pain at times in the right shoulder and right side of chest. She had not been well for some time. Thirteen months before she was in the hospital for a week with right-sided pain, but without any signs. The pain was amenable to treatment and soon cleared up. She was pregnant at the time. She had not been well since the birth of the child eight months ago and was still lactating. She had been a bad sleeper, and had had a very poor appetite for three months. Two days before admission she had wakened with a very severe pain in the front of the right shoulder, and within the last three days she had had two rigors, followed by sweating and vomiting. In the past she had had a left empyema many years before, and enteric fever six years ago. On admission she was found to be well nourished, with a very yellow skin and a heavy appearance, but there was no jaundice. The skin was more than yellow—it was earthy looking. The tongue was clean and moist. Temperature 98°, pulse 90, and respirations 24. A careful examination was made. The lungs, heart, and abdomen were normal; the liver dullness was normal; there was no tenderness anywhere; the spleen was not enlarged, and the kidney secretion was normal. The reflexes were not exaggerated. Next night her temperature was 101°, and the night after 103°, with remissions between. The lungs and abdomen were carefully examined each day, and still no signs except severe pain in front of the shoulder, restlessness, and profuse perspiration. Next night her temperature was 104°, then 102°, followed next morning by a rigor and a rise to 105.2°. The pulse had never been above 100. There were still no signs except an occasional fine crepitation at the lower border of the right lung in front. Deep pressure over the abdomen caused no pain at any point. The liver was most carefully examined, and its area of dullness mapped out. No departure from the normal could be found. The upper limit was in the fifth space. The edge could only be felt on inspiration. The blood was examined, but no haematozoa found. Next day she had another rigor, the temperature rose to 105.8°, and profuse sweating followed.

Still no signs except increased pain in right shoulder and breast, and an increase of respirations to 44. The next day, the eighth after admission, the first definite signs appeared in the right lung—namely, some tenderness on palpation over lower ribs, dullness in anterior and lower part of axilla, and bronchial breath sounds above with crepitations below. Bronchophony and nasal intonation near angle of scapula. On the ninth day the lung signs had increased, and there was an area of tubular breathing below the right breast, but nowhere marked dullness. On the tenth day the signs began to clear, but the general condition was not improved. On the eleventh day the patient was very drowsy and the tongue dry and raw. On examination a sudden change was found in the signs. There was now wooden dullness over the right lung behind and tympanitic resonance in front. Tubular breathing, coin sound resonant and suggestive, but not quite bell-like. In the fourth and fifth right interspaces a curious metallic clicking sound was heard synchronous with the heart beat. It was concluded that there was pus and gas in the pleural space, but there was no definite displacement of the heart, and the apex beat was within the nipple line. Shortly after she had a rigor, a temperature of 105.4° was recorded, and the patient died.

At the *post-mortem* examination the right pleural cavity was full of pus, and the right lung was much compressed. Beads of pus were found in the mediastinum, but none in the pericardium. The stomach was enlarged, and a mass of old tough adhesions connected liver and duodenum. Out of this mass the cystic and common ducts were dissected; it was much distended in two places, and from these two large gall stones were removed, and much dry débris found in the duct beyond. The gall bladder was atrophied. On removing the liver a large quantity of creamy pus escaped from the diaphragmatic surface (subperitoneal subphrenic collection), not covered with peritoneum. There was a hole in the diaphragm where it had burst through into the pleura, and an abscess cavity beneath in the upper surface of the liver about 2½ in. in diameter. On section small multiple abscesses were found in the liver.

THE Orient Steam Navigation Company has arranged for its steamers *Ophir* and *Omrah* to make a series of thirteen day cruises to Norway and the Baltic capitals in June, July, and August, and for the *Otranto* to make a Whitsuntide cruise of seventeen days to Portugal, Spain, and the Mediterranean.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

ULSTER BRANCH.

Londonderry, Saturday, April 30th, 1910.

Dr. THOMAS MCLAUGHLIN, and subsequently Dr. DARLING, in the Chair.

Simulation of Acute Abdominal Conditions.

Dr. COOKE read a brief paper on the simulation of acute abdominal conditions by intrathoracic disease. He narrated 4 cases that had occurred in his own practice—1 of pericarditis with effusion, where the diagnosis was made *post mortem*, 2 of pneumonia, and 1 of pleurisy, where a few hours cleared up the difficulty. He pointed out the extreme difficulty of diagnosis in the early stages of such conditions, and emphasized the necessity for careful examination of the chest in every case of acute abdominal pain. The pulse respiration ratio, the history of the patient, and the presence of tenderness on deep pressure would all help in making the diagnosis. The principal difficulty confronting the surgeon in such cases must be the necessity for deciding for or against operation, delay in abdominal conditions being dangerous, especially when the patient happens to be situated at a distance from the surgeon. Mistakes would be less likely to occur when the medical man recognized the possibility of such a mistake being made. The paper was discussed by Drs. CAMPBELL, CUNNINGHAM, FULLERTON, KIRK, DARLING, and CECIL SHAW.

Stone Impacted in Ureter.

Mr. ANDREW FULLERTON described a method of removing a stone impacted in the vesical orifice of the ureter.

Mrs. M., a patient of Dr. A. Jamison of Belfast, was seen by him for the first time in April, 1907, suffering from movable kidney. He made a note at that time that the patient had had severe pain in the opposite (left) side a year and a half previously. The urine obtained from the right side, though the kidney was freely movable, was normal, whereas that from the left side contained a fair amount of albumen, a fair sprinkling of red blood corpuscles, and some epithelium from the ureter or pelvis. He fixed the right kidney to the external arcuate ligament. The patient did very well for at least two years after this, and gained 2 st. in weight. Mr. Fullerton had not decided what was the cause of the small amount of albumen on the opposite side at that time, and as the patient was in excellent health he did not again see her till the present illness, the history of which was as follows: In August, 1909, she was at the seaside, and after walking some distance she had a severe attack of pain in the left side, attended with smoky urine. This subsided in a few days, and she was fairly well until two months before he saw her, when she again had a large haemorrhage after a long walk. Since then she had had almost constant haematuria and pain, which were aggravated by exercise. He cystoscoped her in February, 1910. Catheters were introduced into each ureter. The left-sided specimen contained blood and pus, and the right a trace of albumen. On March 18th he cut down upon the left kidney and found a large branched phosphatic calculus ulcerating its way through the pelvis of the kidney. He removed this through the pelvis of the kidney, the opening in which was ragged and sloughing. No attempt was made to close this opening. It was freely drained. The patient had a rise of temperature beginning on the third day after operation, but this subsided after a few days, and was evidently due to autoinfection. The wound healed by first intention, except in the track of the drainage tube. Urine came from the wound for about ten days and then ceased. She left the nursing home twenty days after the operation feeling fairly well, with a minute sinus in the position of the drainage tube. A week later she was seized with severe pain in the region of the left kidney, and in a few hours all the urine from the affected kidney came through the wound in the loin which had opened up. He saw her two days later, and cystoscoped her once more. The ureteric orifice on the affected side was now swollen up, so as to be hardly recognizable as such, resembling a large soft oedematous nipple with a dimple near the summit. Into this he inserted a catheter, but found the orifice blocked a short way from the surface. Per vaginam he could feel a hard elongated mass occupying the lowest portion of the ureter at its junction with the bladder. The manipulation of the ureter caused a ring of ecchymosis to appear round the orifice of the ureter as viewed from the bladder. He saw a white projection at the orifice which he took to be pus, but the ureteral catheter failed to dislodge it. The patient was now put under chloroform by Dr. Jamison, and Mr. Fullerton introduced a pair of long urethral forceps by the side of the cystoscope into the bladder. He was unfortunately without assistance, but with some patience he was able to introduce the crocodile blades of the forceps, under the direction of the light of the cystoscope, into the orifice of the ureter and extract a small stone therefrom. Banked up against this fragment of stone, which was about the size of a split pea, was a quantity of debris which came away spontaneously later. Dr. Jamison informed him next day that the patient was quite relieved, and that the urine had ceased to come through the wound and was coming by the bladder. The patient was now quite well.

Mr. Fullerton believed this was the first time that this procedure had been carried out. At any rate, he could find no account in the literature at his disposal of any method resembling this having been used. In a future case he should like to have forceps curved like a cystoscope. The instrument he used on this occasion was quite straight, and therefore most difficult to manipulate into position. In addition urine ran out between the forceps and the cystoscope, and necessitated his procuring the assistance of a friend of the patient to hold the urethra tightly round both instruments to prevent leakage. If he had not succeeded in this manœuvre he would have been obliged to cut down on the stone either through the vagina or by way of the peritoneal cavity with a very much greater risk. With a forceps shaped like a small bladder sound, he did not see why the same procedure might not be carried out in the male. He might also suggest that by opening the blades the ureteral orifice could be dilated prior to attempts at removal of the stone. The smallest-sized cystoscope would be quite large enough to use with the forceps.

Secondary Coli Pyelitis.

Mr. ANDREW FULLERTON also read a case of secondary *coli* pyelitis. This patient was under the care of Dr. Cunningham of Londonderry.

A lady aged about 40 consulted Dr. Cunningham towards the latter end of 1907 complaining of sciatica of the left side. Eighteen months previously she had had an attack of influenza followed by right ovaritis and white vaginal discharge. For this she was treated by Dr. John Campbell. In October, 1908, Dr. Cunningham examined her again and found the sciatica much better, but she had severe pain over the right ovarian region radiating over the abdomen and into the back. In June, 1909, she had several rigors, each attended with fever followed by sweating. The periods were irregular and profuse. Dr. Cunningham found on examination that the uterus was considerably enlarged, that there was white-of-egg discharge, and considerable tenderness in the right ovarian region. The urine was acid, specific gravity 1020, and contained numerous pus cells as seen by microscope. About this time she was curetted by Dr. Cooke. A sample of urine was examined by Dr. Houston of Belfast, who found a pure culture of *B. coli* present. From this time until Mr. Fullerton saw her she was treated by a vaccine prepared by Dr. Houston. She had the treatment about every fortnight. The injections did her some good, as she felt lighter and better after them for a few days. In January of the present year she had again to be curetted for prolonged uterine haemorrhage. The urine still contained pus and *coli* bacilli. Mr. Fullerton saw her for the first time on March 15th, 1910. She told him she had pain in the right hip and also in the lower part of the abdomen over the region of the bladder. On palpation there was no tenderness over either kidney, nor could he detect any enlargement on either side. On cystoscopic examination the right ureteric orifice was puffy, but the bladder was otherwise healthy. Catheters were introduced into both ureters, and a specimen was obtained from each. Both specimens had a specific gravity of 1015, and were acid in reaction. The right was, however, cloudy, and contained a fair quantity of pus. The left contained no pus, but there was a small quantity of albumen. On April 5th he explored the right kidney, and found the pelvis almost completely occupied with a large ovoid stone, evidently composed of phosphates. It weighed 1½ oz. He removed this through a longitudinal incision in the kidney pelvis without in any way interfering with the gland itself. The wound was sutured with iodine catgut, not including the mucous membrane, and a tube was put down to it to provide for drainage in case of leakage. The subsequent progress of the patient was satisfactory, except for a few days' rise of temperature, due, as in the last case, to autoinfection. The wound healed *per primam*, except the track of the drainage tube. There was never any leakage of urine from the pelvis of the kidney, notwithstanding the long wound necessary for extraction of the stone. There is still, nearly four weeks later, a little pus in the urine, but in steadily diminishing quantities.

It was intended that the patient should have a few moredoses of vaccine. Mr. Fullerton was not sure if it was a desirable thing to close the pelvis completely in cases of this sort. It might be better to drain it by a tube tied into it for some days at least. He thought there was very little fear of a permanent urinary fistula. In future he should, if possible, remove all calculi from the pelvis of the kidney without cutting into the organ itself.

Puerperal Eclampsia.

Mr. ANDREW FULLERTON related the following case. He saw the patient at the request of Dr. John Campbell, of Belfast. Shortly, the history was as follows:

Mrs. M., aged 27, had been married about a year. She stated that she remembered having had a pain in her left side six years before she was married. When she was about four months pregnant she noticed that her left side was swollen, and that her face, arms, and legs were also swollen. About six weeks before Mr. Fullerton saw her she had convulsions, and was seen by Dr. Campbell, who induced labour at the eighth month. The patient was then quite unconscious. She was admitted to the Samaritan Hospital about April 8th, 1910, with a temperature which ran up to 103° or 104° at night, and fell to 100° or 101° in the morning. She had also a wretched pulse, varying from 128 to 140. On examination he found her wasted and anaemic, and obviously very ill. On the left side there was a large swelling occupying the renal and lumbar regions and reaching down to below the level of the umbilicus. The tumour was tender and elastic. On cystoscopic examination the bladder was quite healthy, with no redness or swelling round either ureteric orifice. The left orifice was, however, rather valve shaped. Catheters were introduced into both. The specimen from the right side was clear amber, acid, specific gravity 1025, loaded with albumen and casts (epithelial, fatty, granular, and hyaline). There were also some blood cells and cells from the kidney and ureter. The catheter which was introduced into the left ureter failed to draw off any urine until it was pushed right up into the pelvis of the kidney, when a succession of drops of muddy fluid began to come. This fluid was neutral, specific gravity 1005, and contained abundant pus cells. He could detect no casts. He was unable at present to say what was the cause of the pyonephrosis on the left side. It was evidently of old standing, leaving the patient with a kidney which was apparently unable to cope with the strain of pregnancy. That the latter could safely occur with one kidney was borne out by cases that had been under his own care and that of other surgeons, but it was reasonable to suppose that the margin of safety was not so wide as in cases where two healthy kidneys were present.

Aneurysm of the Popliteal Artery Treated by Excision.

Mr. ANDREW FULLERTON related the following case:

C. F., aged 43. No history of venereal disease. Seven months before admission, when stepping on to a tram, he twisted his left knee. Two months later he noticed a small lump at the back of his left knee. This had increased in size ever since, but not at a uniform rate. It would remain the same for a short time, and then rather suddenly increase somewhat. These rather sudden exacerbations went on till the tumour reached its present size. On admission there was a firm elongated swelling in the left popliteal space. No inflammatory signs, no pulsation, no fluctuation, no tenderness. The swelling extended the whole length of the space. There was a little numbness and tingling in the left leg and foot. There was congestion of the foot and ankle, and patches of gangrene on three toes. A few days later he cut down on the tumour, and found it to be an aneurysm of the popliteal artery of a fusiform shape entirely filled with greyish blood clot, which extended into the artery above and below for at least an inch. The vessel was tied with catgut above and below the aneurysm, and the latter was removed. Subsequent to the operation gangrene occurred in the fifth toe, necessitating amputation. The adjoining toe became discoloured, but afterwards recovered its normal appearance.

The case, he said, was of interest from the fact that spontaneous cure was in progress, and that the onset seemed to be due to traumatism some months previously. The tumour was removed as it seemed to be causing pressure on the vein and on the internal popliteal nerve.

Cancer Houses.

Dr. JOHN CAMPBELL read a paper on this subject. He said statistics had been compiled and maps drawn up which were apparently pretty convincing that the disease was one which prevailed in certain localities, particularly those that were low-lying and badly drained and situated on the banks of sluggish streams. In other words, it was a disease of areas in which the natural facilities for drainage were bad. It was also shown that high-lying districts, especially limestone areas, were remarkably free from cancer. These findings had from time to time been controverted by observers, who produced some evidence to show that they were not always true. However, making due allowance for occasional localities which appeared to afford evidence inconsistent with that which was adduced in favour of cancer districts, it might be taken as proven that the popular idea was well founded. Such places as the valley of the Derwent were very strongly in favour of the cancer district theory—a theory which had held its ground for many centuries. In the same way the theory that there were certain houses which were capable of transmitting the disease to their inhabitants had many advocates and many opponents. Whatever view might be taken, there was no getting over the existence of many curious instances of cancer occurring time after time in the same house in people in no way related and having nothing in common but the fact that they inhabited the same house or the same room at different times. Many interesting examples were recorded in the *Lancet* of December 6th, 1902; in the BRITISH MEDICAL JOURNAL of July 6th, 1902; and in the *Practitioner* of February, 1908, and elsewhere. Evidence had also from time to time been brought forward in support of the view that raw food, particularly fruit and vegetables which grow on and near the soil, and were liable to be contaminated by it, was a means by which cancer was distributed. To this view many opposing circumstances had been advanced. It, a few years ago, took a great hold on the popular imagination in the shape of a belief that tomatoes were productive of cancer. The fact that it was the raw tomato which was to be avoided was quite lost sight of in the wholesale condemnation to which that article of diet was subjected. As bearing on this question, it might be noted that the Papuans were reported to be remarkably free from cancer, and to be in the habit of eating nothing raw. This was reported by the Colonial Medical Officer in the BRITISH MEDICAL JOURNAL of April 7th, 1906. It was confirmatory of a report from a certain district in Australia that the people who got their vegetables and fruits from the Chinese market gardeners of that district were very prone to die of cancer. When it was remembered that the Celestial gardener was very fond of using human faeces as a manure, the connexion of his garden produce with the spread of cancer was apparent. A vicious circle from the soil to the man and thence back to the soil was probably established. Instances of apparent transmission by old books were also to be found scattered through the medical journals. All these theories had this in common, that they explained the spread of cancer as being due to something which was taken into the body from contact with or along with an article already contaminated by a diseased person. There was good ground for supposing that the alimentary canal was a very frequent route. The cause of the disease might be ingested with uncooked food, or it might be taken in with cooked food, such as bread which had been handled by the victim immediately after he has been in contact with a polluted book, or a piece of furniture, or wearing apparel. Many of the illustrations of the cancer-house theory which had been already published were much more valuable than his. However, the subject had for long had a fascination for him, and he had been able to collect some suggestive cases. A few of these he briefly related:

1. A sea captain owned a house in Belfast. His first wife died of something of the nature of which Dr. Campbell was unaware. His second wife had cancer of the rectum when he saw her. She had a long illness, and in due course died. A year or so later he married a third wife. She slept in the same room and in the same bed in which the one with rectal cancer formerly lay. After about two years' residence in the house she consulted Dr. Campbell about a cancer of the breast. It was removed. Later on recurrence in the lung took place and carried her off. Here were two women, not related, living in the same room in the same house, and both dying with cancer within a few years. They were both women below the average cancer age, being both in the early thirties. The man himself was a fine, strong, healthy fellow, but it must be borne in mind that he spent long periods away from home, his voyages taking him to South America, and keeping him there going from port to port for a period of two years or so at a time. His sojourns in Belfast were of only a few weeks' duration, whereas the wives lived continuously in this house, and were very home-keeping women, being often never across the threshold for days at a time.

2. Dr. Campbell saw an unmarried lady of about 40, dying of advanced cancer of the breast. After her death the house, a fine residence standing in its own grounds, was bought by a wealthy merchant, who took his family to live in it. About two years after he took up his abode there he saw his sister-in-law, a lady of about 55, suffering from an advanced and inoperable growth in the caecum; she shortly afterwards died. She occupied the same bedroom as the breast case had occupied during her illness. The families were in no way related.

3. A lady of 40 went to reside in a country house in which the previous occupant's wife had died of cancer. Dr. Campbell had been in the habit of seeing her occasionally for some years for chronic metritis, and knew her to be a strong, healthy woman in other respects before her change of residence. About three years after her removal to the new house she consulted

him about a tumour in the breast, which was removed and proved to be cancer. She occupied the same room as the previous occupant had done while she was dying of cancer of the breast. Again two women with nothing in common but the room they occupied; both had cancer of the breast. They immediately succeeded one another in the occupancy of the house.

4. A married lady of about 40 had her breast removed by the local doctor for cancer. Recurrence took place, and Dr. Campbell saw her with cancer *en cuirasse*, from which she soon after died. She had occupied the bedroom in which her husband's mother had died a few years previously, and before the husband's marriage, of ulcerating cancer of the breast.

5. A farmer's wife consulted Dr. Campbell about an inoperable cancer of the cervix uteri. The house in which she lived was a new one, having been built about thirty years previously. The husband himself was hale and hearty at 73, while the wife was about 50. For a time all his inquiries failed to connect the house in which the patient lived or the house in which she had been brought up with any previous victim of the disease. Accidentally, he found that she was the second wife and that she knew that the first one had died of cancer of the stomach.

These were a few of the cases he had collected during the last twenty years. They might be mere coincidences, but he confessed they gave him a weird feeling about houses in which cancer patients had lived and died. He would consider himself wanting in a sense of duty if he knowingly allowed his wife or children to live in a house in which the disease had ever been. Indeed, he could hardly rest content to let them inhabit any house the medical history of which he did not know. He had come to regard a house in which cancer had occurred as in no way less dangerous than a house in which a case of tuberculosis had lain. In conclusion, he gave a summary of two cases which would seem to support the theory that old books might spread cancer.

About ten years ago he saw a gentleman who was approaching his end from malignant disease of the liver. This was no doubt secondary to some primary lesion in the alimentary tract, but when Dr. Campbell saw him the liver growth had come to overshadow the other mischief. He was an old bachelor who for many years had made a hobby of collecting valuable old books. These he bequeathed to a friend and neighbour, who was a scholar and bookish man, though not a collector. Eight or nine years elapsed, and Dr. Campbell was taken to see the man who had inherited the books. He had a large growth of the transverse colon, which proved to be malignant. He died and left a will consigning his whole library to the flames. He had apparently been reading some articles which appeared in the *Daily Mail* in reference to the spread of cancer by books. A fine collection of valuable books had thus to be destroyed.

Until they awoke some morning to find that the cause of cancer had been discovered, the manner of its spread must remain as debatable a point as the question of tuberculous infection was forty years ago. The whole trend of scientific advance pointed to cancer as being one of the communicable diseases, and indicated that measures for the prevention of its spread would ultimately have to be taken. Hence the importance of the cancer house problem and the kindred questions of transmission by books, clothes, and raw vegetable foods. He had submitted these remarks to them not because they had any particular value of their own, but because he should like to get more information from anyone who would take an interest in a fascinating biological problem and an important department of practical medicine. Men practising in country places and small towns had better opportunities of studying the cancer house theory than those who lived amid a constantly shifting population had. He would especially call attention to rectories and manses as likely to yield valuable information. Bank houses were also worth keeping under observation, and farmhouses were almost certain to give much help. One man could do but little, whereas a number could produce results worth having. He should be very grateful to any one who would kindly keep him informed as to the past and future history of any suspected houses in his district. Dr. RANKIN (Newtown-cunningham) related the history of three cases occurring in one house under his observation, and Drs. MCCURDY and MITCHELL BROWNE also spoke.

Results of Chronic Iritis.

Dr. CECIL SHAW read a short paper on the results of chronic iritis. He said that he had been struck with the number of cases coming up from the country to the Belfast Ophthalmic Hospital with the sight almost or quite lost through chronic iritis, the onset of which was often very insidious. Some cases complained of nothing but supra-orbital neuralgia for some time, and only careful inspection of the eyes might reveal the pericorneal injection and the fixed pupil. He then described the various directions in which the exudation from the iris or ciliary body might go, and the effects produced by it, varying from slight dimness of sight to complete and permanent blindness. The great point to be aimed at was the early recognition of the affection, followed by early treatment.

Owing to lack of time, discussion on this and the following paper had to be omitted.

Paper.

Mr. R. J. JOHNSTONE read a short paper on Pelvic Pain in Unmarried Women.

Cases.

Dr. J. C. COOKE (Londonderry) showed cases of severe head injury, of suspected tumour of the orbit, and an obscure nervous case.

Demonstration.

Mr. T. S. KIRK demonstrated a method of treating fractures with plaster of Paris splints. Drs. DARLING, FULLERTON, and CUNNINGHAM discussed the communication.

Reports of Societies.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Wednesday, May 4th, 1910.

Dr. BYROM BRAMWELL in the Chair.

Lactic Acid Bacilli.

DR. CHALMERS WATSON gave a demonstration of the bacteriological examination of various commercial preparations sold as containing active lactic acid bacilli. Many of these were absolutely inert, and in cases where active bacilli were present, their number varied much in tablets taken from the same bottle.

Tuberose Sclerosis.

Dr. J. S. FOWLER described a case of tuberose sclerosis lately seen by him in a child aged 1 year. Its parents were healthy persons, and the child had been normal in physical and mental development until the onset of its fatal illness, when epileptic fits occurred in rapid sequence, the condition on the child's admission to hospital closely simulating tuberculous meningitis. On lumbar puncture, the cerebro-spinal fluid was peculiar in the flaky coagulum that developed some time after withdrawal. Empyema supervened, and the child died. The author said that on analysis of the 26 cases of this condition recorded in its literature he found 8 were male and 18 female. Most of these were in children, though in one case the condition was found *post mortem* at the age of 37. Clinically they were characterized by mental dullness followed by epileptic attacks occurring in series. Multiple renal tumours, described as adeno-sarcomata, were found in 17 out of the 26. Heart tumours occurred in 4 cases, but here account must be taken of the congenital heart tumours that produced death before the brain lesions had developed. Adenoma sebaceum occurred in a large proportion of the cases—17 out of 26. This last was an important feature, and might be of value in diagnosis. Dr. CARNEGIE DICKSON briefly described the results of the *post-mortem* examination which he had made. The conditions found were tuberose sclerosis—multiple hard tumours in the cerebral cortex and projecting into the ventricles—and a rhabdomyoma of the heart. He showed lantern slides illustrating the histological structure of these brain and cardiac tumours. Dr. JOHN THOMSON recalled a case of adenoma sebaceum, where there was no mental defect. Dr. NORMAN WALKER also cited a case of a similar condition, where the mental condition was average, and the patient when last heard of was alive and well at the age of 22. Dr. FOWLER, in reply, said that adenoma sebaceum would only be of diagnostic value if accompanied by mental defect and fits.

Passive Hyperaemia in Gonorrhoea.

Mr. ALEXANDER MILES said that injection treatment of gonorrhoea could only be efficient where there was proper supervision. And this factor being generally absent, injection treatment inefficiently carried out was useless. He had adopted Bier's principle of passive hyperaemia in about 300 hospital cases. After exhibiting

the suction apparatus, which was similar to that used for the finger in whitlow, he said the optimum application was for an hour daily, with three intervals of five minutes in which air was again admitted. The vacuum should produce a turgidity of the penis—a condition of priapism as in spinal injury. If there was pain the vacuum was excessive. The results were favourable. Smears of the urethral discharge showed more intracellular cocci after application than before it. The treatment had several advantages. It was more cleanly. Usually in two days pain and scalding had gone, and frequency of micturition had rapidly diminished. As a rule pus had disappeared in two weeks, and the subsequent thin discharge in another week. There was an unusual absence of complications—2 cases of epididymitis, and 2 of gonorrhoeal arthritis out of 300 cases. General dietetic and medical treatment still remained necessary auxiliaries. Professor CAIRD asked the condition of the urine as to threads after six weeks; and also the frequency of subsequent posterior urethritis. Mr. C. W. MACGILLIVRAY did not agree that injection treatment was inadequate. He also asked when the cocci disappeared from the urine. Mr. MILES, in reply, said he had been unable to follow out the cases for more than six weeks; but in that period less than 10 showed acute posterior urethritis.

Ménière's Disease with Facial Paralysis.

Dr. A. BRUCE and Dr. J. S. FRASER described a case of Ménière's disease in a man aged 65. After exposure to cold throughout a day, he had wakened up next morning with the symptoms of Ménière's disease—giddiness, deafness, and noises in the ear, and with left facial paralysis. After death serial sections of the petrous bone revealed a haemorrhage between the epineurium and the seventh and eighth nerves within the internal auditory meatus. Sections of the cranial nerve nuclei showed degeneration confined to the facial nucleus, while the third and twelfth nuclei were healthy. The case was thus important in demonstrating that the latter nuclei did not contribute fibres to the facial nerve.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF SURGERY.

Friday, April 22nd, 1910.

Mr. J. LENTAIGNE, P.R.C.S.I., President, in the Chair.

Nephrectomy.

DR. R. ATKINSON STONEY read an account of two recent cases of nephrectomy. The first patient was a man who was thrown from his bicycle on to his right shoulder; he was rendered unconscious for a few minutes, but was then able to go home. He remained quietly in bed for about a fortnight suffering from a certain amount of pain in the right side, but it was not till he got up and began to go about that he first noticed blood in the urine. He then came to hospital, where he was kept under observation for three weeks. During this time he continued to pass large quantities of blood in the urine; this blood was found by Luys's segregator to come from the right side. At the operation the kidney was found to be torn almost in two at the hilum, and the lower half was in a state of pulp. Owing to adhesions formed to the peritoneum and surrounding parts the operation was rendered extremely difficult. The second case was one of a girl who had been passing blood and tubercle bacilli in the urine for over six months. The urine was segregated by Luys's segregator on two occasions, and both times the urine from the right side was normal; that from the left contained blood, pus, and tubercle bacilli. At the operation the kidney was found to contain a small cavity (about 1 drachm of capacity) in the upper half, representing the base of one of the pyramids. Under the microscope the walls of this cavity showed general round-celled infiltration and masses of red cells, but no definite tubercles. No blood, pus, or tubercle bacilli could be found after the operation, though several examinations of the urine were made. The author commented on the curious discrepancy between the symptoms and pathological findings in the two cases. Mr. SETON PRINGLE thought the cystoscope was a great advance on the segregator in dealing with such cases. In ligaturing the ureter and vessels he had had trouble with silk, as it cut through and came out subsequently. Dr. STOKES had had trouble in using the segregator, the methylene blue which he injected returning down the other side. Mr. C. A. BALL said he had found the segregator very useful in some cases, but if one used a cystoscope the segregator would rarely be required. Mr. W. S. HAUGHTON said the ruptured kidneys he had had to deal with generally showed haemorrhage from the start. The weight of opinion seemed to be in favour of their removal. The PRESIDENT said he did not think they ought to remove a tuberculous kidney without giving tuberculin a trial. Mr. STONEY, in reply, said he considered catgut the best material in these cases. In respect of the segregator, the mistake in the use of it lay in the position of the patient. If the patient was put sitting up in a gynaecological chair, so that the legs were nearly at right angles with the body, there was no possibility of urine passing from one side to the other unless the bladder became over-distended. In most cases where there were symptoms of extensive injury he thought the sooner operation was done the better. In a young patient severe haematuria which was not affected or relieved by continued rest was almost pathognomonic of tubercle. He had not seen a case of rupture where suturing was possible, as his cases had always been so extensively injured that it was out of the question. The results which he had obtained with tuberculin had not been satisfactory; there seemed to be a great tendency to recurrence.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, May 5th, 1910.

Dr. G. BERRY, President, in the Chair.

Technique of Glaucoma Operations.

COLONEL H. HERBERT (Nottingham), in a paper on the small flap incision for glaucoma, said that two years ago he had performed a small operation upon eight glaucomatous eyes, which had been described already briefly as a form of subconjunctival paracentesis. By means of a narrow Graefe knife a small rectangular sclero-corneal flap was cut subconjunctivally, with its base at the limbus. This flap might be forced forward a little under the conjunctiva by the intraocular pressure. Probably it tended to shrink slightly in volume through being deprived of its direct blood supply for a time. Firm reunion appeared to have been thus prevented. The results up to date were available in 6 only of the 8 cases. One case was a failure, owing apparently to adhesion of the iris to the wound. In the remaining cases the tension had been reduced to normal by means of linear filtering cicatrices. In 2 of the cases, however, the complete reduction of tension had occupied a period of a few months. The leakage of aqueous was at first insufficient. Two of the patients were shown at the meeting. During the last five months Mr. Laws and himself had been operating by means of a broader flap, usually placed above, owing to the possible need of iridectomy, basal or complete, to prevent adhesion of iris to the wound or prolapse. These incisions had been made mostly by means of keratomes and of bent narrow blunt-ended knives. Flaps also, 2 to 3 mm. wide, had been utilized in some cases with the narrow Graefe knife at the outer side of the cornea. It was too early to say more about the results of his 14 recent cases than that they were very encouraging. Combined iridectomy, peripheral or complete, according to the state of the iris, appeared advisable, with the broader incision in cases in which the pupil did not contract well to eserine. It had been performed in 3 cases only in this series, and secondary iridectomy two days later in 1 case. By this operation an attempt was made merely to secure with certainty and safety the same linear filtering cicatrix which was sometimes the chance result of an ordinary iridectomy operation. In the author's experience a filtering or fistulous cicatrix was the rule after a successful iridectomy, and in itself was sufficient to account for the success.

Congenital Word Blindness.

Mr. HERBERT FISHER, in a paper on inability to learn to read, reported four cases which had come under his own observation in one girl and three boys. In one of the male cases there appeared to be very suggestive evidence of a

hereditary and family tendency to the defect, in another there had been considerable flattening of the left side of the cranium at birth, and a remnant of this deformity could still be easily recognized. The author thought it probable that as further examples of the defect were collected the cases would be found to range themselves into two groups: (*a*) The hereditary group, in which the visual memory centre for words residing in the left angular gyrus failed in development; probably in this group a considerable portion of the female cases would be found. (*b*) A group due to limited meningeal haemorrhage over the same gyrus, the result of birth injury. This group would account for the well recognized great preponderance of congenital word blindness in the male sex, due to the greater size of the head in male than in female infants at birth. He pointed out that larger meningeal haemorrhages at the time of parturition resulting in birth palsies were twice as common in male as in female children. He urged the necessity for special and private tuition for children with this defect of congenital word blindness, and he thought the phonic method of learning to read, making use of the glosso-kinaesthetic centre to aid the visual memory centre, less likely to lead to a satisfactory result than endeavours to train a vicarious visual memory centre in the right hemisphere; for such training he advocated the "look and say" method of learning to read; the child should use the "word" as its unit of observation and study, and not the individual letters. The "look and say" system had been practically developed by Miss Mason, of 56, Romola Road, Herne Hill, S.E., in her "Delightful Reading Box" system, which the speaker had had used with most satisfactory results in one of the cases reported to the meeting.

Pyocyanase.

Dr. A. BRONNER (Bradford) read notes on 6 cases of hypopyon keratitis treated by local applications of pyocyanase. Many cases of ulceration of the cornea, especially in elderly people, were most difficult to cure, and often ended in complete destruction of the cornea. In some recent cases Dr. Bronner had applied 50 per cent. pyocyanase eye drops every hour. In every case the pain had disappeared in a day or two, and the ulcer had healed up more quickly and with less consequent opacity of the cornea than under the ordinary method of treatment (galvano-cautery, carbolic acid, subconjunctival injections). Of course, atropine drops and hot fomentations were also used. Pyocyanase was a brownish fluid prepared from broth cultures of the *Bacillus pyocyaneus*, as suggested by Emmerich and Lowe, by the Institute of Bacteriotherapeutics at Dresden.

NORTH OF ENGLAND OBSTETRICAL AND GYNAECOLOGICAL SOCIETY.

Friday, May 6th, 1910.

Dr. W. K. WALLS (Manchester) in the Chair.

Vaginal Subtotal Hysterectomy.

DR. A. J. WALLACE (Liverpool), in a note on vaginal subtotal hysterectomy, stated that when removing the uterus per vaginam for small fibroids or for persistent uterine haemorrhage the idea had occurred to him that removal of the whole uterus was an error, because it prolonged the operation and increased the trouble from bleeding. On the other hand, removal of the cervix permanently weakened the pelvic floor and led to alterations in the relations of the vagina. He therefore adopted the following plan of removing the corpus uteri only. The utero-vesical pouch is opened and the corpus uteri brought out into the vagina. The posterior vesical peritoneum is then sutured to the posterior peritoneum of the cervix uteri; thereby the corpus is rendered extraperitoneal, and the peritoneal cavity is closed. The broad ligaments are next sutured and divided as far down as the os internum, and the uterine arteries are ligatured as they bend externally. The corpus uteri is cut away from the cervix, and the anterior and posterior walls of the cervical stump are sutured together. The sutured ends of the broad ligaments are now sewn to the cervix and the vaginal wound closed, a gauze strip being left in the potential cavity behind it.

Eclampsia.

Dr. W. FLETCHER SHAW (Manchester), in a paper on the prognosis of eclampsia, based the following conclusions on the results of 46 cases treated at St. Mary's Hospital during the years 1906–7–8. There are three specially bad prognostic signs in eclampsia: (1) A small amount (less than 10 grams per litre) of albumen during the eclamptic stage; (2) a high temperature (over 100° F.); (3) post-partum onset of symptoms. A very large percentage of cases with one of the two first symptoms end fatally (61 per cent. of 21 cases, and 57 per cent. of 18 cases respectively); with the two symptoms combined the prognosis is the very worst (all 12 cases died); with neither of the symptoms the prognosis is extremely good (all 7 cases recovered). The third symptom warrants a very bad prognosis (only 1 out of 8 recovered).

Kraurosis or Leucoplakia Vulvae.

Dr. BRIGGS (Liverpool) showed a water-colour drawing from a case under his care, taken for the purpose of testing the conclusion of Messrs. Comyns Berkeley and Victor Bonney, that kraurosis and leucoplakia vulvae were two distinct diseases. Neither from naked eye nor microscopic examination of the present case had the exhibitor been able to separate the two diseases.

Complications of Pregnancy.

Dr. LLOYD ROBERTS (Manchester) reported a case of pregnancy complicated by a perinephritic abscess. In spite of free drainage through a lumbar incision and the passage of a satisfactory amount of urine, the patient died six days later. A six months child was born alive during the night after the operation. *Post mortem*, the kidney showed numerous abscess cavities lined by lymph, which contained streptococci.

Pelvic Tumours and Appendicitis.

Dr. W. BLAIR BELL (Liverpool) recorded two cases of pelvic tumours associated with acute appendicitis. In the one case the gangrenous appendix and the body of the uterus, which contained multiple fibroids, were removed; in the other bilateral ovarian cysts and the perforated appendix. Both cases ultimately recovered.

HARVEIAN SOCIETY OF LONDON.

Thursday, May 5th, 1910.

Dr. H. J. MACEVOY in the Chair.

THIS was a meeting at Paddington Infirmary, where cases were shown by Dr. MAURICE SQUIRE, the Medical Superintendent. Among them were some contrasted examples of tuberculous onychia, suppurative onychia with rheumatism, one of haemophilia, of sclerodermia with arterio-sclerosis, of haemianaesthesia in a man, and a patient recovering from facial paralysis sequential to a mastoid operation. Among specimens shown were the main arteries from a case operated on some six years previously for supposed innominate aneurysm. The right subclavian and common carotid had been tied, and the case was regarded as a cure. The specimen showed no sign of any previous aneurysm of the innominate, but the calibre was somewhat enlarged and the walls thickened, and the left common carotid was in close proximity. The right subclavian was occluded at the site of the ligature, but the right common carotid was patent and presented an aneurysm at the site of the ligature.

WE have received a copy of the report issued by Mr. Joseph Baxendell, Meteorologist to the Southport Corporation, setting forth the results of the observations made by him during the year 1909, which is as interesting as its predecessors. Among the many tables contained is one showing the year's values of temperature, rainfall, and sunshine at sixty health resorts in Great Britain and in ten large towns. From this we gather that, as compared with London and Jersey respectively, the mean temperature for the whole year 1909 at Southport was, on the Fahrenheit scale, 47.4°, against 49.5° and 51.2°; the mean temperature of the summer months, 55.7°, against 59.0° and 59.7°; the mean daily range of temperature, 11.0°, against 12.9° and 11.8°; the total rainfall, 35.72 in., against 24.90 in. and 31.70 in.; and the total duration of bright sunshine 1,611 hours, against 1,733 hours and 1,999 hours.

Reviews.

TEXTBOOKS OF GYNAECOLOGY.

DR. COPE, it must be admitted, has produced a handbook which can really be conveniently carried in the hand, for *Minor Gynaecology*[1] is small and made up of light paper in a light cover, whilst the type is good, contrary to the rule in small manuals. It is also totally free from controversies and tables of references, not to speak of other literary elements unsuitable for the pages of a work professed by its author to be a guide to the practitioner. In short, it is the antithesis to the gigantic German *Handbuch*, loosely bound in several volumes, and meant for the study of the expert. The five photographs of specimens illustrating diseases of the female organs, taken from the museum of St. Mary's Hospital, are almost a luxury, whilst the diagrammatic sketches representing reposition of the displaced uterus, sites of uterine fibroids, etc., are more in keeping with the objects of the manual. The text, the most important part of the book after all, is a fair and instructive synopsis of the diagnosis and treatment of the diseases of women. It is doubtful how far the average practitioner would find it worth his while or trust himself to attempt the diagnosis of tuberculous lesions—a problem which occasionally baffles even experienced pathologists; still it is advisable that he should be made acquainted with the principles of such methods, and Dr. Cope is therefore right in adding a short summary of the necessary special methods of diagnosis to his chapter on tuberculous disease. For tubercle is not a very rare cause of disease of the genito-urinary tract, and the Fallopian tubes are specially liable to infection. It happens that tuberculous salpingitis is not an easy disease to distinguish in its earliest stages, whilst it is very rebellious to treatment when well established. Hence all who treat women's diseases should bear in mind the diagnosis and treatment of tubercle in general. Dr. Cope is judicious about instruments and pessaries. He ranks operation for the repair of an old rupture of the perineum as "minor gynaecology," and teaches Lawson Tait's method to his readers, with its H-shaped flap, made with scissors, without any removal of cicatricial tissue. Yet, after all, this method is not only relatively easy, but it seldom fails to heal the rectal and anal wound, if reasonably well performed; the same cannot be said of more complicated methods, which, if they succeed, are a better insurance against prolapse, but if they fail leave the unfortunate patient unrelieved of the most disagreeable sequel of the injury.

DR. ASHTON'S *Practice of Gynaecology*[2] is a good textbook and a favourable sample of the work done by the Philadelphian school in the domain of gynaecology. The author writes about treatment more judiciously than many other Anglo-Saxon writers on both sides of the Atlantic; indeed, he has added fresh matter to his directions for carrying out indoor exercises for the treatment of constipation. In this respect he does more wisely than compilers of manuals who pad their pages with details about other people's modifications of one single plastic procedure, although this work suffers rather from being overloaded than from being meagre in detail. The opinion of a distinguished Philadelphian authority on certain stock subjects like cancer and its treatment, will be sought with interest. Dr. Ashton believes in the *x*-ray treatment for recurrent cancer, but places little or no stress on the extensive dissections practised by many European operators in association with the extirpation of the cancerous uterus. He maintains, as before, that if the vagina, the rectum, the bladder, the broad ligament, or the cellular tissue of the pelvis are involved, a radical operation is useless. In short, Dr. Ashton, guided by further experience, maintains his opinion on the operative treatment of carcinoma as expressed three years ago in the third edition of his textbook. He rightly lays even more stress than before on cystoscopy and the treatment of cystitis. No gynaecologist is really fit for hospital or private practice unless he liberates himself from a common but dangerous error that dysuria is essentially a symptom of uterine or ovarian disease. He must learn to recognize all disorders of the urinary tract, especially cystitis, and therefore must master the details of inspection of the interior of the bladder. Respect for that very tender portion of the tract is further taught by Dr. Ashton when he deprecates certain old-fashioned methods of treatment for the relief of vesico vaginal fistula. He also adds fresh matter concerning tuberculosis of the genital tract and the treatment of the worst forms of peritonitis. The blood counts, on which he also dwells, are rather a stumbling-block to those who qualified long before their introduction as a means of diagnosis, especially when it is a question of peritonitis, haemorrhage, or shock; but in this new edition Dr. Ashton maintains their importance, though he admits that blood findings are not pathognomonic, and are too contradictory and conflicting to be relied upon as the sole means of making a positive diagnosis.

[1] *Minor Gynaecology*. By V. Zachary Cope, B.A., M.D., B.S.Lond., Surgical Registrar, London Temperance Hospital; late Resident Medical Officer, the British Lying-in Hospital, and Resident Obstetrical Officer, St. Mary's Hospital, Paddington. (The Practitioner's Handbooks Series.) London: John Lane. 1909. (Post 8vo, pp. 286; with 11 full-page illustrations and 30 drawings in the text. 5s.)

[2] *A Textbook on the Practice of Gynaecology for Practitioners and Students*. By William Easterly Ashton, M.D., LL.D., Professor of Gynaecology in the Medico-Chirurgical College, and Gynaecologist to the Medico-Chirurgical Hospital, Philadelphia. Fourth edition. Philadelphia and London: W. B. Saunders Company. 1909. (Royal 8vo, pp. 1099, 1057 illustrations. 27s. 6d.)

PELVIC ASTHENIA.

PROFESSOR VAN DER HOEVEN has attempted a fair summary of a most intricate subject very much discussed by anatomists at the present day, and the result is this pamphlet—*Die Asthenie und die Lage-Anomalien der weiblichen Genitalien*.[3] Many authorities will doubt that the author has a clear conception of intra-abdominal pressure and of its great importance in the economy of the body, but these critics are by no means always lucid themselves. Closely associated with this factor, as far as the author's work is concerned, is the mechanism and the limitations of the pelvic muscles. Anatomists, once more, are divided about their mechanism, and tend either to underrate or overrate the supporting powers of those muscles. Halban and Tandler have devoted much time to the preparation of a fine monograph on prolapse, and British obstetricians and anatomists are familiar with Professor Arthur Keith's views on the visceral supports of the pelvis, conveniently summed up in the first volume of the *Proceedings of the Royal Society of Medicine* (Obstetrical and Gynaecological Section, page 216). Though the subject is not being neglected in this country or abroad, it remains intricate, and hence Van der Hoeven's synopsis is not without value. This work may aid the student, qualified as well as unqualified, to understand reports and theories unavoidably intricate, but it is doubtful, however, whether the author is a safe "coach," for whilst he sums up what others have said, his own conclusions seem in great part questionable. Perhaps the best part of the work consists of the good photographs illustrating general "ptosis," such as pendulous breasts, the *facies ovarica* and the *facies* of pregnancy. These illustrations impress on the learner how much asthenia, or loss of tone, may mean. Professor Van der Hoeven himself, however, lays too much stress, according to current teaching, on the perineal body as a support. He uses the old argument that, on statistical evidence, displacement of the uterus is to be detected in the majority of cases of complete rupture of the perineum. It is true that the statistics which he brings forward are original, being based on cases under treatment at Leyden, but he does not compare his series with cases of retroflexion and retroversion not associated with ruptured perineum. He speaks of the levator ani as a structure which is supported by the transversus perinei, and the sphincters of the vagina and anus; most modern authorities maintain that the latter muscles can exercise no such function, and that the levator ani is one of the main supports of the pelvic floor. Yet his summaries give the reader a fair idea of current views, and his pamphlet suggests that some British expert might do well if he prepared a short and lucid manual on enteroptosis and displacements of the abdominal and pelvic viscera, briefly explaining their close association, and noting the theories

[3] *Die Asthenie und die Lage-Anomalien der weiblichen Genitalien*. Von Dr. P. C. T. Van der Hoeven, Professor in Leyden. Harlem: de Erven F. Bohn; and Jena: Fischer. 1909. (Sup. roy. 8vo, pp. 100, 61 Abbildungen. M. 3.)

which have been brought forward as to their cause. Then, after careful study of dissections and of patients, let it be understood, the reader of such a manual would be in a position to understand the views of Landau, Halban and Tandler, Arthur Keith, and other distinguished anatomists, whose treatises are of high value, but can hardly serve as handy guides to the student and practitioner.

GASTRO-INTESTINAL DISORDERS.

THE general idea of the editor of this "Medico-Chirurgical Series" is that physicians and surgeons should collaborate in dealing with diseases, and probably there is no department in which this is more necessary than in that of diseases of the digestive tract, and Dr. BOSANQUET and Mr. CLOGG may be congratulated on the success with which they have performed their task in producing the volume now before us entitled, *The Stomach, Intestines, and Pancreas*.[4] The weakest part appears to be that dealing with the examination of the stomach, for the description of some of the methods do not seem to have been written by one personally familiar with the procedures; for example, in testing with Guensberg's reagent (the proportions are incorrectly given) it is usual to evaporate in a porcelain dish over a spirit lamp, as is described lower down for the tropaeoline test, and we can conceive no advantage to compensate for the loss of time in evaporating over a water bath. In testing the digestive activity of the stomach contents the white of egg should be in thin discs about the twentieth of an inch in thickness, and not "cubes"; and here the second and third tubes are confused, and the results given in the wrong order. The importance of looking for stasis is not properly brought out, nor is any definite time limit given within which the normal stomach empties itself. The newer methods of Schmidt and Strasburger for examining the faeces are not mentioned. Under "achylia gastrica" it should have been stated that no symptoms may be present and no treatment be required; the treatment suggested by pepsin and hydrochloric acid in the doses given in the only prescription at the end of the book would certainly be futile. Cases of excessive secretion of gastric juice ought to be classified into continuous and intermittent, and the value of a diet of minced meat, the meal being followed two hours later by hot water, should have been mentioned. Under the functional disorders of the stomach the essential difference between bulimia and acoria is not made clear as it should be, because in the latter there is no craving, and therefore no need for sedatives. In the treatment of gastralgia its chronic and daily recurring nature would not appear to have been in mind when the section on treatment was written; the use of arsenic is apparently approved, but it has failed to justify the hopes held out a good many years ago. Nervous dyspepsia may be a vague term, but in ninety-nine cases out of a hundred the condition so described is dependent upon gastroptosis with atonic dilatation. The table given on page 74 is not satisfactory, for perhaps the most characteristic sign of chronic gastritis, vomiting of mucus, especially in the morning, is omitted, though in the description of the disease later on it is mentioned and proper stress laid upon it. Fermentation in the stomach is rarer than the reader would be led to imagine, for even where there is pyloric obstruction and stasis it is usual to find the stomach contents sterile, owing to the presence of sufficient hydrochloric acid to check microbial growths; from what is to be read on page 89 the authors evidently know this; interesting cases of gastric fermentation have, indeed, been published, and might have been referred to briefly. Ingluvin should no longer find a place as a remedy for vomiting, for any effect, if ever produced, was probably due to suggestion. In prescribing a diet it is essential to tell the patient that though at first it may have to be restricted to certain simple articles named, yet as improvement takes place other food can be added, and the articles permitted should be stated; finally a model diet should be given, with a warning as to those things which must be excluded for some time, or even permanently. In the directions given in the volume before us these details are wanting, and the information would have to be supplemented by just that knowledge on the part of the practitioner which the book ought to give. The chapter on gastric ulcer is good, but the table on differential diagnosis omits the important symptom of appetite or desire for food. The authors' experience of the use of olive oil is unfortunate if they have found that it causes vomiting and loathing; although it might be expected to have this effect, it does not occur frequently, and considerable experience of its use proves it to be well borne; it may be given alone or as an emulsion with compound tragacanth powder and some flavouring, such as cinnamon water. The indications for operating in diseases of the stomach are well thought out, and cover all the ground, but the diagnosis of perigastric adhesions, for which operation is often necessary, may be made by the discovery of stasis; by the omission to mention this the reader is left without any reasons to justify the exploratory incision recommended. Nearly two-thirds of the book are devoted to diseases of the intestines, and a considerable proportion is taken up with surgical procedures, which are clearly described and illustrated by appropriate figures. The section on constipation is poor; colectomy is not mentioned; diseases of the appendix and appendicitis, and the necessary operations concerned, are dealt with very fully. Diseases of the pancreas are discussed briefly, but more adequately from the surgical than from the medical point of view. It would have been interesting to hear the authors' experience of the value of Cammidge's reaction, but, as in so many other books, no definite opinion as to its value is expressed.

Professor MATTHES's fasciculus on the treatment of chronic gastric ulcer in Professor ALBU's encyclopaedia of diseases of digestion and metabolism[5] is an interesting summary of the discussions and of the progress of opinion on this subject during the last twenty years, illuminated by the results of his own wide experience and excellent judgement. He points out that not long ago the treatment of ulcer of the stomach as laid down by Kussmaul and Fleiner and developed by Ziemssen and von Leube was generally accepted as sound in its basis and satisfactory in its results, but that of late it has been subjected to much criticism from the medical point of view by innovators, among whom Lenhartz may be especially named, while surgery has shown itself more and more disposed to interfere even in uncomplicated cases. He first considers the diagnosis, and admits that probably many cases were formerly included where no ulcer existed, even although haematemesis had occurred, but expresses the opinion that if this latter sign is taken together with other symptoms the diagnosis is sure. Where there is no haematemesis and the diagnosis is based upon epigastric pain coming on after food, with or without vomiting, no such certainty can be felt, since by the use of the *x* rays it has been shown that such pain is not related to the stomach. He attaches considerable importance to the discovery of occult blood in the faeces if the patient has been put upon a proper diet, and regards the benzidine test as of great value for this purpose. He believes that it shows positively that an ulcer is there, and that this sign may be used to give information as to the progress of an ulcer. Although the presence of blood in the stools may be taken to show that the ulcer has not healed, we fear that its absence cannot be regarded as any proof that healing has taken place. The Roentgen rays with the aid of bismuth may help in the diagnosis of an ulcer. The patient should be given bismuth on two or more successive days, when, if the stomach is examined by the screen, a certain amount of bismuth may be seen adhering to the ulcer, which may in this manner be recognized. The rays are also useful in demonstrating the presence of hour-glass stomach, pyloric stenosis, and perigastric adhesions. In discussing treatment, Professor Matthes considers first how far knowledge of the causation of chronic gastric ulcer affords a satisfactory basis for treatment, and his conclusion is that it does not. After reviewing the various theories and the experimental work of the last twenty years, together with the chief clinical

[4] The Medico-Chirurgical Series, No. 2. *The Stomach, Intestines, and Pancreas*. By W. C. Bosanquet, M.A., M.D.Oxon., F.R.C.P., and H. S. Clogg, M.S Lond., F.R.C.S.Eng. Edited by James Cantlie, M.A., M.B., C.M.Aberd., F.R.C.S.Eng. London: John Bale, Sons and Danielsson, Limited. 1909. (Cr. 8vo, pp. 673. 12s. 6d.)

[5] *Sammlung zwangloser Abhandlungen aus dem Gebeite der Verdauungs Stoffwechsel-Krankheiten*. Herausgegeben von Professor Dr. A. Albu. II Band, Heft 4. *Die Behandlungsmethoden des chronischen Magengeschwürs*. Von Professor Dr. M. Matthes. Halle a. S: Carl Marhold. 1910. (Med. 8vo, pp. 56. M. 1 40.)

observations, he is of opinion that the problem is still unsolved. He refers to the recent interesting work of Katzenstein and Fuld on the presence of a supposed protective ferment in the stomach (antipepsin) which they have endeavoured to isolate and use in the treatment of gastric ulcer under the name of "amynin," but considers their results doubtful. The treatment, therefore, must still be symptomatic. Taking the symptoms in detail, he discusses, first, haemorrhage. This he says, generally stops of itself; but the main lines of treatment are absolute rest, the hypodermic injection of morphine, abstinence from food, rectal injections of normal saline solution where there has been much loss of blood, and feeding by nutrient enemata for a few days. He speaks with favour of the subcutaneous injection of sterilized gelatine if the bleeding is persistent, but it has been shown that sterilized gelatine is useless, while unsterilized gelatine is too dangerous to be employed. Recurrent bleeding may call for surgical intervention. He describes in detail the various plans of diet of Leube, Penzoldt, and Lenhartz, and finds no great difference in the ultimate results, but he disapproves of Lenhartz's plan of feeding by the mouth, even while haemorrhage is going on, as it involves a certain risk, while no harm to the patient can result from abstinence for a few days. After the bleeding has stopped he follows the usual practice of feeding with small quantities of mechanical non-irritating food, gradually increasing the quantity and consistence in the course of three or four weeks, which should be spent in bed. With regard to drugs, he believes bismuth is useful, while oil and sugar check gastric secretion, and iron will help to improve the state of the blood. He gives as indications for surgical intervention repeated bleeding, repeated relapse after medical treatment, the occurrence of perforation, stenosis, painful epigastric adhesions, hour-glass stomach, and any suspicion of carcinomatous degeneration of the ulcer. Finally, he compares the results of medical and surgical treatment, and concludes that the latter is by no means so successful as to warrant the claim that it should supersede the former. He regards the disease as emphatically one in which physicians and surgeons should co-operate, and in which there is an undoubted sphere for the exercise of both methods of treatment.

Dr. L. BAMBERGER'S Alvarenga prize essay on the internal and surgical treatment of chronic gastric ulcer and its consequences is a compilation mainly based on German experience.[6] He has followed the not altogether convenient method of dividing the subject into two parts, the first dealing with the medical and the second with the surgical treatment of gastric ulcer. The great defect of the book is that he does not lay down clearly and definitely the conditions suitable for medical treatment and those which ought to be handed over to the surgeon. Thus, for example, he discusses in the first portion the medical treatment of pyloric stenosis and hour-glass stomach, although such treatment must be futile or at best only palliative. He does not discuss acute gastric ulcer and syphilitic and tuberculous ulcers, and with regard to gastric ulcer comes to the conclusion that our knowledge of its etiology is insufficient to form a sound basis for treatment; he evidently inclines, however, to the opinion that excessive acidity is more often the consequence than the cause of disease. He holds that the internal treatment of gastric ulcer must be mainly dietetic, advocates the use of milk and afterwards a diet poor in chlorine and mainly vegetarian, and urges strongly that dietetic precautions should be maintained for a long time. He gives statistical tables to show that there is no great difference in the ultimate results of Lenhartz's treatment, recently described by Dr. Spriggs (BRITISH MEDICAL JOURNAL, April 3rd, 1909, p. 825), which is based on the principle of early solid food, and that of Leube, in which the patient is kept longer on slops. He gives Lenhartz credit for proving that we may be somewhat bolder in the administration of food, but early feeding in the treatment of gastric ulcer has been long and consistently advocated in this country by Professor Saundby, who wrote nineteen years ago (*Lancet*, February 14th, 1891), "These patients are generally anaemic and ill-nourished, and this is of great importance when we come to consider the treatment, for the starvation method now in vogue is calculated to maintain this unfavourable state of things; while I attribute the success I have met with to the energy with which I have endeavoured to remedy these conditions." In that lecture he allowed bread and milk, eggs, and light pudding in the second week; chicken, light pudding, and mutton diet in the third week; and he concluded by saying, "It may be thought that there is danger by this plan of exciting haematemesis, but I think this fear is sufficiently answered by the record." As Dr. Bamberger has quoted Donkin and McCall Anderson for what he calls the English plan of prolonged rectal feeding, there is less excuse for overlooking the fact that the other view has its supporters here. We agree with him in deprecating Lenhartz's rashness in allowing food on the same day as that on which the haematemesis has occurred. He has nothing fresh to add to our medical treatment, but he draws the conclusion from his statistics that the failures are 32 per cent., which is not a satisfactory result. On the other hand, as, even on this showing, two-thirds are cured by medical means, the claim of the surgeons to have all gastric ulcers handed over to them for treatment cannot be allowed; surgical operation is, he thinks, indicated when there have been repeated relapses, when there is severe continuous pain or profuse or repeated haematemesis or persistent emaciation. When an ulcer is situated at the pylorus surgical intervention is essential, but he does not say how we are to recognize its situation. For simple ulcer he advocates gastro-enterostomy and for malignant ulcer resection, the mortality being only 4 per cent. In non-pyloric ulcers the operation should be "taken into consideration in all obstinate cases," but the risk is 12.6 per cent. He discusses the question of operation for haematemesis, and includes pyloric stenosis, hour-glass stomach, and obstruction from perigastric adhesions among the conditions for which surgical interference is required. The usefulness of the book is diminished by the absence of an index, but it contains much statistical information.

[6] *Die innere und die chirurgische Behandlung des chronischen Magengeschwürs und ihre Erfolge.* Von Dr. L. Bamberger. Berlin: J. Springer. 1909. (Demy 8vo, pp. 270. M.8.)

MYOPATHIES.

DISEASES of the muscles, particularly the obscure and chronic disorders known as the primary myopathies, have always received more attention in France than in other countries. The appearance of an exhaustive French monograph on the subject is therefore a matter of considerable interest; and we may say at once that Dr. MARINESCO'S careful and elaborate treatise fully comes up to expectations,[7] and is worthy to take its place in the great system of medicine and therapeutics in which it forms one of the last sections. The first third of the volume is taken up by the discussion of pseudo-hypertrophic paralysis, or myosclerosis, after which the Leyden-Moebius type of myopathy is fully considered. Interesting details of a typical "living skeleton" of this type are given; he presents an extreme degree of general muscular atrophy, only the muscles of the neck and face remaining intact, together with a small quantity of the pectorals and erector spinae; even the intercostals and abdominal muscles have disappeared. The tendon reflexes have vanished, the patient's various forms of sensation show very extensive disturbances, and he suffers from diffused bodily pains for short periods daily. The reaction of degeneration is absent; numerous contractures of the joints are to be observed. Discussing the diagnosis, Dr. Marinesco sums up in favour of a progressive generalized myopathy; numerous photographs of this patient are given, and show his extreme emaciation. The other types of myopathy considered are Erb's juvenile form (the scapulo-humeral type), Zimmerlin's type, and the facio-scapulo-humeral type of Landouzy and Déjerine. Heredity is a very common feature in all these myopathies, and the author argues in favour of their nosographic identity. Two, three, or even four of these types may be combined in a single patient—thus Wougtschowski described a patient simultaneously exhibiting the infantile, juvenile,

[7] *Maladies des muscles.* Par G. Marinesco, Professeur à la Faculté de Médecine de Bucarest. Section XXXVIII of the new edition, edited by Gilbert and Thoinot, of Brouardel and Gilbert's *Nouveau traité de médecine et de thérapeutique.* Paris: J. B. Baillière et Fils. 1910. (Sup. roy. 8vo, pp. 172; 76 figs. Fr. 5.)

and pseudohypertrophic types, together with Duchenne's hereditary type—and the author holds the frequency with which these mixed cases occur to be a strong argument against elevating the various "types" into the position of separate diseases. His discussion of their pathology is very thorough, and is well illustrated. The last quarter of the book is devoted to the various inflammatory diseases of the muscles, dermatomyositis, neuromyositis, haemorrhagic polymyositis, and other varieties of infection of the muscles, including myositis ossificans. It is interesting to remark that no place is found in Dr. Marinesco's book for myasthenia gravis, although so many pathologists have found extensive lesions of the muscles in that condition. Dr. Marinesco writes clearly and convincingly, and has made admirable use of the literature of the subject, which is fully quoted in footnotes. Many of the illustrations are excellent; the book is well printed, and should really be indispensable to the myologist and neurologist.

EDUCATIONAL AND THERAPEUTIC EXERCISES.

THE question of physical exercises in connexion with public schools is one the great importance of which has already been recognized, and to which the Board of Education have lately given some attention. Dr. R. T. MCKENZIE'S book, *Exercises in Education and Medicine*,[8] will prove of great value to those who are concerned in any way with the organization of courses of physical exercises for school children, and also to those who are in search of information with regard to the application of neuro-muscular training as a treatment for disease, or the results of disease. In both fields there has been and still is too much left to the non-medical exponent of particular systems.

Dr. McKenzie gives much interesting information with regard to the physiology of exercises, the effects of exercises of effort and endurance, massage and passive motions. The various systems of physical training and their essential differences are clearly explained and well illustrated, and in the temperate discussion of their merits and demerits the question of mental effort is not lost sight of. The school medical officer, who at this juncture is theoretically asked to take over the supervision of a branch of education which has hitherto been generally in the hands of ex-army drill instructors and others, will be glad of a book in which he can find nearly all that he requires in order to form a reliable opinion upon any set of exercises, or from which to obtain suggestions applicable practically to any set of children, from the ordinary healthy school child to the blind and mentally defective. The chapter on the physical education of the mentally and morally defective is particularly interesting. In Part II the application of exercises to pathological conditions is dealt with—flat foot, stooping shoulders, scoliosis, cardiac disease, obesity, and many other conditions being taken up, including such nervous diseases as occupational neurosis, infantile paralysis, stammering, chorea and locomotor ataxia. Under almost every one of these headings some information of value, and not to be readily had elsewhere, will be found. If we may venture one criticism, it is that, granting the extreme value of physical exercises in promoting physical development, and in prevention and treatment of disease or amelioration of its effects, Dr. McKenzie in some instances claims rather more for this form of treatment than all will be inclined to grant.

NOTES ON BOOKS.

THE volume on medicine on board ship,[9] modestly described by its author, Dr. FRANCK CLAIR, as consisting of notes, has more than one claim to attention. It has been awarded the Clarens Prize by the Academy of Medicine in France, and is the outcome of eighteen years at sea in the capacity of surgeon in charge of passengers and crews in ships trading chiefly in tropical and subtropical climates. After some account of the general conditions in which his work has been done, the author describes under alphabetical headings the diseases and injuries most commonly encountered on board ship, the fashion in which their course tends to be modified by the environment, and the treatment which he has found most easy, and in the circumstances most effective, to apply. In the latter part of the volume he passes from a description of his actual experiences and practical conclusions thereon to a general consideration of a ship medical officer's life and the provision which should be made for his work. He also advocates the creation in France of a public service of precisely the same character as that which in the United States of America exists under the title of the Public Health and Marine Hospital Service. The volume should be found of practical use by medical men who occasionally take charge of passengers and crews, provided they can read somewhat idiomatic French, while some of this sailor medical man's observations are of general interest and are summed up in such brief, dry phrases as to give to the volume an attraction even for those whose acquaintance with the sea is acquired from the shore.

SLEEPING SICKNESS.

In the *Diary* on sleeping sickness (Part IX)[10] of the Nyasaland Protectorate, edited by Dr. Hearsey, the principal medical officer, the histories of the eight cases of sleeping sickness reported in Part VIII are given. Case I still remains in good health; Cases II, III, IV, and V have died; Cases VI and VII, which were detained at Livingstone, North-Western Rhodesia, have not been heard of since their detention was first notified, while Case VIII has died at Broken Hill, North-Western Rhodesia. A summary of the work done up to December 31st, 1909, by the medical officers engaged on sleeping sickness investigations is also given. No information has been received from either North-Eastern or North-Western Rhodesia since the publication of the last memorandum, but Dr. Hearsey has been informed, in reply to his inquiry as to whether *G. palpalis* had been found in the locality where Case VIII was said to have contracted infection, that two medical officers had carefully searched the neighbourhood without result. Dr. Davey, on his way home, made a careful search of the lake shore for *G. palpalis*, but failed to find it. *Glossina morsitans* and *fusca* were, however, met with.

[8] *Exercises in Education and Medicine.* By R. T. McKenzie, B.A., M.D. Philadelphia and London: W. B. Saunders and Co. 1909. (Medoctavo, pp. 406; 346 illustrations. 15s.)

[9] *La médecin à bord.* Notes. Par Franck Clair. 1910. Paris: Vigot Frères. Pp. 362. Fr. 5.)

[10] Nyasaland Protectorate, Sleeping Sickness, *Diary*, Part ix. By the Principal Medical Officer. Zomba: Printed by the Government Printer. 1910.

MEDICAL AND SURGICAL APPLIANCES.

Epilation Forceps.

DR. ARTHUR WHITFIELD (London, W.) writes: In picking out the broken stumps of ringworm hairs I have found great difficulty in finding a pair of forceps finely pointed enough to enable one to dig a short stump out of the mouth of the follicle and yet stout enough to avoid crossing or opening when the pressure is put upon them. Messrs. Allen and Hanburys have made me a pattern which appears to me to combine the qualities which experience has taught me to regard as desirable. The forceps are stoutly made so as to avoid any lateral movement of the points upon one another, and end in a broad grasping end, finished at an angle of 45 degrees with the axis of the shaft. By these means one end of the gripping points has an acute angle which gives the necessary point for digging out very short stumps. In depilating wholesale the forceps are held so that the acute angle is directed away from the hand, and it will then be found that the whole of the gripping surface lies parallel with the scalp, while the hand is out of the line of sight. If a single stump is to be taken out, the forceps are turned so that the obtuse angle is away from the hand, and the point will then come into a comfortable position for use on the scalp, while the slope of the shaft will still keep the hand from obscuring the view. The broad edge is made rather sharp, so that it can be easily used for detaching scales for microscopic examination. I have been using a pair of forceps of this pattern for some years, but have only recently decided to call attention to its convenience because I have been so frequently asked where I have procured them.

ANNUAL REPORT OF THE BOARD OF EDUCATION.

IN the annual report of the Board of Education for the year 1908-9[1] the hope is expressed that in at least three important particulars substantial improvements have been made in the conditions under which elementary education is given. One of these improvements is a reduction in the size of classes under individual teachers, another is a change in the system of payment of grants, while the third, and in our opinion the most important, is the very definite steps which have been taken to improve elementary school premises.

School Premises.

Information has been obtained by the Board as to the condition of the 20,690 ordinary public elementary schools in England and Wales, and a preliminary investigation of this information indicates that in about 2,000 instances the school premises are more or less seriously unsatisfactory. There are not included in this number those schools in which the only objection to the premises is the fact that three or more classes are taught in a single undivided room, nor those cases in which the only ground of objection is that the playground accommodation is insufficient; nor are those schools included which merely require to be enlarged. The extreme difficulty of forming an estimate of the extent to which school buildings fall short of a reasonable standard of efficiency is pointed out in the report. The standard embodied in the building regulations of the Board, though applicable to new schools, could not be employed universally in judging of existing school premises, for it would result in the condemnation of a large number of school buildings erected within the last twenty or thirty years. In some instances the particular defects are so glaring that the Board can without hesitation insist on their remedy, but in the majority of cases out-of-date school buildings exhibit a variety of defects which, considered separately, are insufficient to justify condemnation, but in combination make the premises decidedly unsatisfactory. Medical officers of health who have occasion to draw the attention of school managers to the unsatisfactory structural arrangements of schools are constantly met with the statement that the particular matter condemned has received the sanction of the Board of Education. It is now frankly admitted in the report that the official standard has been very materially raised on many occasions, and "there is reason to believe that until a comparatively recent date this standard fell considerably below the best practice of the country."

In the attempt to deal satisfactorily with some existing school buildings two special difficulties are referred to. The first is that many school buildings which, so far as their internal arrangements are concerned, are readily capable of improvement, have been built on such confined sites that there is very little playground accommodation. In view of the increased importance attached to physical exercises, any curtailment of the area already given to the playgrounds would be very undesirable. The second difficulty is associated with the dual system of school supply. In some districts it is stated that although the aggregate number of children is quite sufficient to form one well-organized school, yet the total number of scholars is divided among one or more small voluntary schools, or between a small council school and a small voluntary school. There are some towns, it appears, in which the managers of voluntary schools of the same denomination would save large sums of money, both to themselves and to the local education authority, if they would agree to "pool" and redistribute their scholars among the available schools.

After referring to the criticism which the Board frequently has to face that its demands for improvements are not merely progressive and wanting in finality, but are also capricious and unsystematic, it is admitted that in some respects the system of dealing with unsatisfactory school premises is capable of improvement. A great deal has been done in the past seven years in the way of improvement, but it is felt by the Board that the time has arrived when a resolute and systematic endeavour should be made to deal with the remaining cases of unsatisfactory school buildings throughout the country. The work done by the officers employed in the medical inspection of school children has brought home to the local education authorities the reality and importance of defects which they had been disposed to regard as insignificant if they did not altogether deny their existence. It is therefore the intention of the Board to follow up its own preliminary survey of the present condition of school buildings by inviting local education authorities and the supporters of voluntary schools to make a similar comprehensive survey, with a view to preparing a scheme for the systematic removal of defects within a reasonable period.

The Board anticipates that if an effort is made in a given period to bring all the schools in an area up to a reasonable standard of suitability and convenience it may be possible for the Board to refrain from demanding further improvements for a period of years and until the next periodical review is undertaken. If this procedure is carried out the local education authority and the school managers will be spared the annoyance of intermittent requirements, and will be able to forecast their expenditure over a term of years more accurately, while the Board will be able to standardize its requirements more completely, and, incidentally, its inspectors will be set free for their more legitimate duties.

Rural Education.

Referring to the question of rural education, the Board expresses itself as being in full sympathy with those persons who desire to have the curriculum and methods of instruction in rural schools less "bookish" and more practical. In some of the Buckinghamshire schools the manual work which is usually confined to the infants' classes is being carried out throughout all the classes—a course which appears to meet with the approval of the Board. During the year under review the Board paid grants for the instruction of over 20,000 children in gardening—an increase of more than 5,000 on the number who received such instruction in the previous year.

Education of Teachers in Hygiene.

It is only tardily being realized in this country that if children are to be taught efficiently those who teach must themselves have an intimate knowledge not alone of the art but also of the science of teaching. There are now available in various parts of England and Wales nearly 12,000 places in training colleges for teachers and further provision is being made for the same purpose, notably in Glamorgan and in Monmouthshire. It is satisfactory to find that hygiene, which was formerly an optional subject, is now included in the curriculum of every training college except in the case of students taking degree courses. A course for men students covering a year's work in hygiene and physical exercises has been instituted at the South-Western Polytechnic, Chelsea, and constitutes a third year of training under the regulations of the Board. During the summer of 1909 a model course in hygiene and physical exercises was held in London. Lectures were delivered by Professor Henry Kenwood, Chadwick Professor of Hygiene in University College, London, and during visits to certain schools he gave practical demonstrations in the modern methods of sanitation and ventilation.

Medical Inspection.

A separate report[2] was issued by the Board upon the working of the medical inspection provisions of the Act of 1907.

Provision of Meals.

The Board has also issued separately a report for the two years ending March 31st, 1908, and March 31st, 1909, on the working of the Education (Provision of Meals) Act, 1906. In a prefatory note Mr. Selby-Bigge, Principal Assistant Secretary in the Elementary Education Branch of the Board of Education, points out that there are great possibilities connected with the wise and effective working of this Act in conjunction with the Children Act and the Education Act of 1907. One of the outcomes of the Provision of Meals Act has been the formation of local "Children's Care Committees," and these, with other voluntary agencies, have done a great deal in the way of carrying on an effective warfare against ignorance and

[1] Report of the Board of Education for the Year 1908-9. Cd. 5130. Price 9½d. Eyre and Spottiswoode.

[2] BRITISH MEDICAL JOURNAL, January 22nd, 1910, p. 213; February 5th, 1910, p. 328.

carelessness. The Act empowers local education authorities, after obtaining the sanction of the Board of Education, to defray the cost of food supplied to elementary school children provided the total expenditure does not exceed an amount equal to a halfpenny rate. During the two years with which the report was concerned, this sanction was given to 136 education authorities. In the second of these two years there was an expenditure out of the rates of £48,000, and £17,000 was provided by voluntary contributions for the purposes of the Act. Less than £300 was contributed by or recovered from parents. The influence for good upon the general conduct of the children who were provided with meals is a subject of general comment. One teacher reported that owing to the meals being granted through the school the parents had fallen in more readily with medical inspection, and there was certainly much less trouble than formerly in securing cleanliness and good manners. The experience gained of the working of the Act goes to show that it must take its place as a part of the machinery of public education in this country.

SCIENCE NOTES.

IN the form of a digest of the report on the Irrigation Departments of Egypt and the Sudan for 1908, Colonel Sir C. C. Scott-Moncrieff contributes an interesting article to the April number of the *Geographical Journal*. The subject is one of fundamental importance to the welfare of Egypt and the countries of the Nile Valley, and it is essentially identified with the British occupation of these parts. Previous to that very little had been done in the way of controlling the Nile. It is remarkable to think that the ancient Egyptians, with all the mechanical genius they possessed and the power at their command, appear never to have thought of regulating the flow of the river on which their very existence depended. It was, in fact, not until the beginning of last century that any attention was devoted to the matter, when, at the suggestion of a French engineer, a dam was thrown across the two branches of apex of the delta. This was of service until 1867, when a bad fracture occurred. No steps were taken to repair it for nearly twenty years, but on the arrival of the British in 1883 one of the first matters to receive attention was irrigation and dam construction, and the country owes much to Lord Cromer, who had the foresight to earmark a million pounds for irrigation purposes. The original dam, even when repaired, was found to be totally inadequate, for although it raised and diverted the river when running low, it did nothing to store the volume that rushed to the sea during flood time. It was on that account that in 1895 the great dam at Aswan was built, with the result of raising the level of the river 75 ft. and creating a great lake in Nubia 200 miles long. The ultimate benefit was enormous, as it ensured a perennial water supply for the whole of Middle Egypt. An auxiliary dam was later constructed at Assiut for the purpose of diverting the water from the river on to the fields. Even these great works, however, were found to be insufficient for all needs. South of Assiut irrigation was still dependent on floods. It was, therefore, resolved to raise the Aswan dam another 23 ft., and thereby more than double the volume of water stored. This work, which is in progress, is expected to be complete in 1912, and there should then be a perennial water supply for the whole of the Nile Valley north of Aswan. To control the discharge south of Assiut another dam has just been completed at Ina, 100 miles north of Aswan. There the width of the river is just about half a mile. In addition to the dams it has been necessary to construct a costly network of canals to carry water to every part of the Nile Valley, and the outlay for this purpose will be half a million pounds. Another direction in which there has been a marked improvement since the British occupation is in the matter of roads. Previously it had been quite impossible to drive a cart from Cairo to Alexandria. Moreover, navigation on the numerous canals was generally obstructed by the imposition of heavy tolls, mainly with the view of increasing the revenue on the State railway. Now these imposts have been abolished and there is an excellent system of roads, to which 100 miles were added last year. The task of carrying the water off the land was found as difficult as that of leading it on. There was much to contend with. The faulty alignment of the old canals was a continual source of trouble. The exceeding flatness of the country and the absence of tides in the Mediterranean removed two natural resources. Some of the land, in fact, is under sea-level, and although once fertile is now waterlogged. Much has been done in this direction, but much more remains to be done. The conditions in the Sudan are not nearly so encouraging as those in Egypt. The scanty population, the poverty and the lack of water make the country at present of very little value. Some improvement ought to result when the Aswan dam is completed. Before undertaking the irrigation of such a vast territory numerous considerations have to be weighed, but enough has already been ascertained to decide on the feasibility of making a great canal, arising from the left bank of the Blue Nile near Sennar and running in a north-westerly direction more or less parallel to the river. This would supply a large tract of rich black soil, but the drawbacks are the sparseness of the population and their ignorance of methods of irrigation. Such enterprises as these are a fitting testimony to the beneficence of the British rule in Egypt, and bid fair to enhance the reputation of the Nile Valley as a land of monumental works.

Sir E. Ray Lankester, in his presidential address to the Royal Microscopical Society, gives a summary of several recent lines of investigation which demand the attention of microscopists. After dealing with the ultramicroscope he refers to Dewar's experiments on bacteria at very low temperatures. The fact that they can withstand exposure to a temperature approaching absolute zero for many weeks and that in such a state they are impervious to most destructive agencies is interesting. The only agent which was found to destroy them was light from the violet end of the spectrum. The whole question of the action of light and radiant energy not only upon bacteria but upon all forms of protoplasm, naked and protected, is likely to be of immense importance in the immediate future. Before progress can be hoped for, however, more delicate methods of experiment must be devised. The part played by bacteria in the alimentary canal of man is then discussed, and reference made to some of the theories and discoveries familiar to us in these latter days. The name of Metchnikoff is naturally mentioned more than once. The curious association of bacteria with all forms of animal life is a matter on which our present knowledge is little more than scrappy. As to its importance and interest, both from a medical and biological point of view, there can be no question, and, as Sir Ray Lankester rightly insists, "a complete study of the bacteria to be found in the alimentary tract of all animals, with a demonstration of the history and source and activity of such bacteria as are found, is required."

To the farmer, until not so long ago, the starling appeared an altogether innocuous bird. It was not regarded, like so many other birds, as an enemy of the seed time, for it was considered to be an entirely carnivorous feeder. For the most part it certainly regales itself with all manner of creeping and crawling things like beetles, spiders, grubs, worms, and molluscs; and, for a change, it now and again indulges in a little fruit. Whether the seed-eating propensity is an old habit which had hitherto escaped observation or whether it is a development of modern times is a matter of much doubt, but certainly no cognizance was taken of the fact until the beginning of the present century. At that time several persons had occasion to call attention to the depredations of starlings in newly-sown fields; and conclusive evidence that their visits were not of a purely friendly nature was adduced by the finding of seeds in their crops and gizzards. Dr. Kelso, who has done much to bring this matter to light, summarizes the facts in the April number of the *Zoologist*. Such a change—if, indeed, it be a change—in the habits of the starling is extremely interesting, and is not without parallel in the case of some other of our common birds. Perhaps the most outstanding instance is that of the black-headed gull, which from being a shore bird, like all its relations, appears to be rapidly becoming an inland inhabitant, and is even to be seen roosting on trees.

LITERARY NOTES.

WE are requested to state that next week's *Punch*, to be issued on May 18th, will be a special King Edward Memorial Number, and will consist of 40 pages, chiefly of illustrations gathered from the pages of *Punch* from the late King's birth in 1841 up to the date of his decease. It will be sold at the usual price of 3d.

In the May number of the *Polyclinic*, Sir Jonathan Hutchinson discusses Goethe's last illness. The account is abridged from Lewes's *Life*. It is, he says, a graphic though brief record of a form of illness which brings about the death of very many in senile or presenile periods of life whilst still, apparently, in vigorous health. The season of year, the sudden exposure, the severe rigor, the rapid but deceptive development of symptoms, the absence of anxiety on the part of the patient, the almost sudden termination, make together a picture which is complete with one exception. After such signs one may feel almost certain that herpes on the lips followed, but it has escaped notice. Goethe, in early life, was considered to be consumptive, and he nearly died from an attack of haemorrhage from the lungs. It may be mentioned by the way that the nature of this illness was dealt with in the *Zeitschrift für Tuberkulose* for February of the present year, by Professor Bernhard Fraenkel, of Berlin, who concludes that Goethe's ill-health in youth was due to tuberculosis, not to syphilis as has been mentioned by some. Later the poet became robust, and was fond of outdoor pursuits and of fresh air. He would sleep out of doors wrapped in his cloak, and would bathe in the river by moonlight. He was always subject to catarrh, but never had any more serious illness. He took wine freely, and it is recorded that he was never overcome by it. He was always fond of warmth, and after middle life was very tolerant of close rooms if only they were warm. The modern hygienist will be shocked to hear that in later life he could not endure an open window, and cared nothing for ventilation, appearing to prefer a close room. His last illness was probably an attack of catarrhal pneumonia with pleural effusion. One morning his grandson, going into his bedroom for breakfast, found him still in bed. It was March (the 16th), and he thought he had taken cold on the preceding day by going across his garden from a heated room. He was now 83 years of age, and in remarkably vigorous health. A physician who visited him found him very feverish and ill. In the evening he was better, and talked and joked. On the 17th he was so much better that he dictated a long letter to W. von Humbold, and it was thought that all danger was past. No note is made as to the 18th, but about midnight on the 19th he awoke with severe pain in the chest, and with his hands and feet icy cold. His teeth chattered, and the pain in the chest made him groan. Clearly, says Sir Jonathan Hutchinson, he had a rigor, and the pain probably denoted pleurisy. His face was ashen grey, and the eyes dull and sunken in the sockets. He was removed from bed to an easy chair, as he could not find a comfortable position. Towards evening he became a little better, and signed some papers. On the next day the pain was gone (effusion), but he seemed exceedingly ill. He tried to read, but could not manage it. He asked for the list of those who had called to inquire for him, and said that such evidences of sympathy must not be forgotten when he was well. On the 22nd he talked of the coming spring, and said that it would soon restore him. He even tried to walk up and down the room, but was too weak to continue it. He had no idea that he was about to die. As the day advanced he slept at intervals, but frequently wandered in his talk. His speech became less and less distinct, and about half-past twelve he composed himself in the corner of his easy chair, drew figures in the air and on his dress with his finger, then apparently fell asleep, and so passed away. His illness had lasted six days. The last words which his attendants distinguished were "More light."

In a recent issue of *Science*, Dr. J. F. Abbott raises a question which has often vexed our own spirit, though we have always put it aside, salving our literary conscience with Lord Melbourne's famous question, when enthusiasts told him something or other called for reform, "Can't you leave it alone?" We congratulate Dr. Abbott on his gallant attempt to rectify a particularly absurd error which has by long use almost acquired a prescriptive right to continue. He writes:

> Perhaps it is too late in the day to protest against this spelling, but it seems to the writer that even should our physiologists concede their science to be "made in Germany" certainly our language is not. There are certain obvious rules for the transliteration of Russian names that have been in effect since such transliteration began to be done. But of late there appears to be a tendency to ape the Germans in this regard. Vladivostok now masquerades on many maps as Wladivostok. But if Pawlow, why not "Saratow," or "Orlow," or "Trepow," or "Popow"? Even *Minerva*, which no one ever accused of being un-Teutonic in its make-up, uses the spelling Pavlov throughout. What reader of contemporary history would recognize the name of the famous Russian diplomat, Pavloff, if he read that one Pawlow was some time minister to Korea? Surely our orthography is bewildering enough as it stands without wantonly importing foreign absurdities into it.

The name of the distinguished physiologist is correctly pronounced by a good many, but "Paulou" is too common. A still more illustrious name is almost universally mispronounced in various ways. Those with some knowledge of German speak of Vir*ch*ow (*ch* guttural); some say Vir*ch*ov; some uncompromising Britishers we have heard say "Virchow" (*ch* hard, and last syllable rhyming with "cow"), or even "Virtschow." The great pathologist pronounced his name, which is not, strictly speaking, German, "Virshō."

John Bunyan was born at Elstow in 1628, and it should interest all lovers of English literature to learn that it is proposed to erect a memorial to the author of the *Pilgrim's Progress* in his native place. It may be remembered by some of our readers that Bunyan was held up by Mr. Edmund Owen to medical writers as a model of style. Bunyan's work, says Mr. W. Charter Piggott, minister of the Bunyan Meeting, Bedford, in a circular which he has issued, bore fruit in his native village, and probably there have never been wanting those who, Sabbath by Sabbath, have walked along the old level road to Bedford to worship with the congregation in Mill Street, and to join in fellowship with the church in which Bunyan was minister. The village of Elstow, he adds, still retains much of the flavour of its past, and the Moot Hall is unquestionably a fitting historic home for those who follow in the spiritual faith of Bunyan. The church at Bunyan Meeting, Bedford, proposes to erect on a site, given by Mr. Samuel Whitbread, a hall, to be known as the "Bunyan Memorial Hall," which will contain not only accommodation for public worship but also smaller rooms and all the appointments necessary for school and social work, at a cost of from £1,500 to £1,800. Over £1,000 has already been raised, and of this sum the little congregation at Elstow has contributed through its own effort £165. Subscriptions will be received and gratefully acknowledged by the present minister of the church of whose membership the Elstow congregation is a part, the Rev. W. Charter Piggott, Bunyan Meeting, Bedford.

IT is announced that Dr. Zenchallo, Medical Officer of the International Sanitary Commission, has died of plague at Jeddah as the result of infection when examining rats.

AT the annual meeting of the Medical Mission Auxiliary of the Church Missionary Society on May 6th, the report submitted showed that the society now maintains fifty hospitals in various parts of the world. Between them they provide 3,075 beds, the patients treated therein last year numbering over 29,000. In addition there were upwards of 1,100,000 out-patient attendances. Professor A. Carless, of King's College Hospital, who was in the chair, drew attention to the magnitude of the work done, its economical administration (the expenditure being less than £40,000 a year), and the high qualifications of the medical men engaged in it. They included a gold medallist and all were men who would have been in the front rank of the profession at home. Some account of their experiences as medical missionaries was subsequently given by Messrs. B. van Someren Taylor, M.B., C.M.Edin., of Hing-hwa, China; T. L. Pennell, M.D.Lond., F.R.C.S., of Bannu, North-West Frontier, India; and J. H. Cook, M.S.Lond., F.R.C.S., D.T.M., of Mengo, Uganda.

Death of King Edward.

THE LAST ILLNESS.

KING EDWARD THE SEVENTH may be said with perfect truth to have died a martyr to his sense of duty as a Sovereign. Throughout his reign he had insisted on performing his public duties without regard to his personal convenience. It was only within a day or two of his death that he could be prevailed upon to keep within doors, and even in the last throes of the distressing and dangerous complaint which was so quickly to cut short his valuable life he refused to take to his bed until his flagging powers could no longer be spurred into activity by his resolute will. Thirty-six hours before he breathed his last he gave audience to Lord Islington—the new Governor of New Zealand—and Major T. B. Robinson, Agent-General for Queensland. He continued up to nearly the end of the last day of his life to do his work, and he reminded his attendants that he had an important appointment fixed for twelve o'clock on the same day. If ever a man died in harness it was King Edward the Seventh.

From a medical point of view the case was perfectly simple, and the stopping of the machinery of life was due to causes about which there is nothing doubtful or mysterious. We think it necessary to point this out, since the appearance on the bulletins of the name of a leading laryngologist gave rise to a revival of unfounded rumours which were current even before the deceased monarch came to the throne. Professor StClair Thomson had, however, attended him on several occasions during the last eighteen months; before that time Sir Felix Semon had often been called on to advise the King about his throat; it may be added that more than twenty years ago he had been seen by the late Sir Morell Mackenzie.

For years the King had suffered from emphysema and a tendency to more or less acute bronchitis, with the usual symptoms of distressing and ineffective cough and difficulty of breathing. For a long time there had been crepitation at the bases of both lungs, indicating a chronic impediment to the free passage of air in the smaller bronchial tubes. He was subject to attacks of laryngitis, producing a slight spasm of the vocal cords; but, except for some inflammatory thickening at the hinder part of the glottis and chronic catarrh of the throat, there was, we are in a position to state, no trace of disease in the upper air passages. The King, in short, had what is known as a smoker's throat, and this and the congestion and thickening due to that cause, combined with the loss of elasticity in the lungs, made it increasingly difficult for him to clear his chest. The strain thrown upon the heart by the obstruction to the passage of blood through the lungs caused by the collection of secretion in the bronchial tubes had its natural sequel in dilatation of the right ventricle, and the actual cause of death was heart failure due to the increasing difficulty in the pulmonary circulation. It was, in short, a case of a type seen every day in thousands of elderly persons. The cause of death in such cases is purely mechanical, the action of the overladen heart being gradually stopped by increasing resistance in the lungs. Could the King have been induced to spare himself more he would probably have lived many years longer. His Majesty had indeed suffered from glycosuria of varying degree for a long time, but this did not, as far as can be judged, tend to the shortening of his life. Another condition which must have caused considerable discomfort at times was a certain weakness in the abdominal wall at the site of the operation for appendicitis, which was performed in 1902.

We only mention these infirmities as the knowledge of what he had had to endure must increase the admiration which all Britons feel for the high courage and resolution of the Sovereign whom they have lost. The state of his health would have been a reasonable excuse for some degree of valetudinarianism. Of this weakness the late King showed no trace. A notable feature in him was the pluck with which he bore himself, not only in the illnesses which have been mentioned, but during the painful period when he was recovering from a fractured patella. Although he invariably listened to the advice of his physicians with respect, he did not always follow it if it seemed to him to stand in the way of the discharge of his duty. It should be a comfort to his subjects that he passed away peacefully before he had reached the stage of invalidism which is the frequent fate of sufferers from bronchial asthma. Except for the conditions which have been referred to, the King had till lately been a remarkably healthy man. He led a strenuous life, and it may be said that since he assumed the sceptre he seldom, if ever, had what the humblest of his subjects would call a real holiday. Even his social activity, which he thoroughly enjoyed, he may be said to have looked upon as part of the day's work. There is probably no man in these realms who worked harder or more conscientiously than Edward the Seventh.

His life, spent as it was in the fierce light that beats upon a throne, would to most men have been exceedingly tiresome. But Edward the Seventh thought it a part of his duty as a Sovereign to fulfil ceremonial functions of the most diverse kinds and to mingle freely in society. He delighted to live among his people, and he shirked no engagement that might help to promote goodwill among the nations. More than a year ago the strain began to tell on his robust constitution. He was ill when he went to Berlin in the early part of last year; he was ill again in the autumn, and it was noticed by many of those who saw him at the opening of Parliament that he looked very weary and unwell.

On his way through France he caught a fresh chill, and during the early days of his stay at Biarritz his condition caused some anxiety. The skill of his physician and the care of his nurse, combined with

the favourable influence of the climate, enabled him to shake off the enemy for a time. Had he been a private citizen he might have extended his stay at Biarritz, which was proving beneficial; he felt obliged, however, to return to his post to be ready to play his part in a great constitutional crisis. He returned from Biarritz without stopping. This hurried journey would have taxed his strength even had he been in perfect health. Suffering as he was from the effects of recent illness, the King might fairly have been excused from facing the risk of returning from the South to the cloudy skies and cold winds and showers of a treacherous English spring. The result might almost have been foretold. Though the end came with startling suddenness to his people, it was clear to those about him that the end was imminent before any whisper of alarm had found its way outside the palace. The first bulletin issued on Thursday revealed the real nature of the situation to those who could read between the lines. During the last night the state of the heart made the august patient very restless, but the next day he was able to transact business for a short time. Gradually he became unconscious, reviving once or twice sufficiently to recognize the Queen and some of the others about him. But the unconsciousness deepened into coma, and the royal sufferer passed away so quietly that his life seemed to

Cease upon the midnight with no pain.

The King was attended throughout by his Physicians in Ordinary, Sir Francis Laking, Sir James Reid, and Sir R. Douglas Powell, and by one of his Physicians-Extraordinary, Dr. Bertrand Dawson, Dr. StClair Thomson being called in consultation. Some time ago His Majesty underwent a course of vaccine treatment at the hands of Dr. Spitta, Bacteriologist to St. George's Hospital. All the resources of modern science were used in the last illness. He was nursed by Miss Fletcher, whose ministrations he had learnt to appreciate at the time of the operation performed upon him by Sir Frederick Treves.

[Since the above account was written an official report, signed by Sir Francis Laking, Sir James Reid, and Sir R. Douglas Powell, has been issued. It fully confirms our description of the course of the disease, only giving a few more details as to the last hours of the King.]

PREVIOUS ILLNESSES.

As already said, the late King had a remarkably strong constitution, and until his respiratory troubles began he had suffered but little from illness of any kind. In 1871, however, an attack of typhoid fever brought him to the very verge of the grave. His life was saved by the skilful treatment of Sir William Jenner and Sir William Gull, with the assistance of a local practitioner, the late Dr. John Low. In 1898 he slipped on the spiral staircase of Waddesdon Manor, and, in the effort to save himself from falling, fractured his left patella. He was attended by Sir Francis Laking, who summoned the late Sir William MacCormac. Lord Lister and the late Sir Thomas Smith were subsequently called in consultation. The line of fracture was nearly transverse and close to the upper margin of the patella; the gap between the fragments amounted to a little more than 2 in. The question of operation received the most anxious consideration by the medical attendants, who, after carefully weighing all the circumstances of the case, decided against it. This view was fully endorsed by Lord Lister, whose opinion upon any matter involving the question of operation on the patella was rightly regarded as authoritative. The Prince made a good recovery, and no impairment of the usefulness of the limb was left. Sir Francis Laking, Sir Alfred Fripp, and Deputy Inspector-General A. G. Delmege, R.N., were decorated in recognition of services rendered by them on the occasion.

KING EDWARD AND THE MEDICAL PROFESSION.

The whole medical profession shares in the general grief at the untimely and irreparable loss which the nation has suffered by the death of the King. He honoured it by consenting to become an Honorary Fellow of the Royal College of Physicians of London in 1897, and by accepting a similar compliment from the Royal College of Surgeons of England on the occasion of the celebration of the centenary of its foundation in 1900. He took the keenest interest in the development of hospitals, and was ever active in helping them. The formation of the Hospital Fund which bears his name is a testimony of his anxiety for the prosperity and efficiency of institutions for the relief of suffering. He gave his powerful patronage to the crusade against consumption. The Sanatorium at Midhurst, which was opened in June, 1906, is a standing proof of his devotion to the welfare of his people. He also took a great interest in the reorganization of the Army Medical Service which followed the South African War, and expressed privately his approval of the article published in the BRITISH MEDICAL JOURNAL of December 31st, 1904, p. 1761, which dealt with the introduction of the new principle of promotion by selection on the ground of merit instead of by virtue of mere seniority.

Not long ago the King showed his continued interest in the advance of medical science by the initiative which he took in the foundation of the Radium Institute for the investigation of the therapeutic properties of that remarkable substance and their application to the treatment of disease. What he had heard of its beneficial effects in suitable cases had impressed him with the need for such an institution.

KING EDWARD AND THE BRITISH MEDICAL ASSOCIATION.

Another instance of the interest which he took in the profession is the fact that when Prince of Wales he received with favour a proposal that he should become an Honorary Member of the British Medical Association. He was accordingly elected at the Annual Meeting at Ipswich in 1900. On his accession to the throne in 1901 His Majesty, in accordance with custom, intimated that he could not continue his Honorary Membership. He graciously consented to become Patron of the Association

in the following year. Mr. Edmund Owen, as Chairman of Council, has sent to Sir Arthur Bigge the following letter:

British Medical Association,
429, Strand,
London, W.C.,
May 9th, 1910.

Sir,

On behalf of the Council of the British Medical Association, I humbly beg leave to offer to His Majesty and to the Members of the Royal Family our respectful sympathy on the death of His Majesty King Edward VII, and to assure His Majesty of our loyalty and devotion.

I have the honour to be, Sir,
EDMUND OWEN,
Chairman of Council.

Sir Arthur Bigge, G.C.V.O., etc.,
Marlborough House, S.W.

KING EDWARD AND PUBLIC HEALTH.

Though the reign of Edward VII was short, it was in many ways eventful, and the power of his personality made itself felt throughout the Empire which he ruled and in all civilized countries. It does not lie within our province to discuss the political side of his manifold activities; but we may be allowed to refer to the important part which he played in movements for the amelioration of the conditions of life among the poor, in the development of charitable work, and in the furtherance of sanitary science. In the debate which led to the appointment of the Royal Commission on the Housing of the Poor in 1884 he said the subject of the housing of the poor was not totally unknown to him, as, having acquired a property in Norfolk twenty-one years before, he had had something to do in building fresh dwellings for the poor and the working classes. On arriving there he found some of the dwellings in a most deplorable condition, but he hoped that now there was hardly one person on the estate who could complain of not being adequately housed. A few days before he had visited two of the poorest courts and districts in St. Pancras and in Holborn, where the condition of the poor, or rather of their dwellings, was perfectly disgraceful. There had existed for some time several private societies organized for inquiry into this question. All ought to be grateful that they should have given time to so important a subject, and he felt that a Royal Commission could in nowise clash with the efforts of these private individuals. He expressed an earnest hope that the inquiries of the Royal Commission would result in its being able to recommend to Parliament measures of a drastic and thorough character which should be the means of ameliorating not only the dwellings of the poor, but their condition generally.

He took an active part in the work of the Commission, on which he sat with Sir Charles Dilke, the other members being Cardinal Manning, the Marquess of Salisbury, Earl Brownlow, Lord Carrington, Mr. (afterwards Viscount) Goschen, Sir Richard (afterwards Viscount) Cross, the Bishop Suffragan of Bedford, the Hon. Lyulph Stanley, Mr. W. McCullagh Torrens, Mr. Henry Broadhurst, Mr. Jesse Collings, Mr. George Godwin, and Mr. Samuel Morley. From his work on the Commission the late King gained a knowledge of what Carlyle called the "condition of the people question," and that knowledge kindled in him a living interest in the subject. This found expression in many ways. There was no landlord in the country more careful of the welfare of his tenants or more considerate in his dealings with them.

"IF PREVENTABLE, WHY NOT PREVENTED?"

No one had a more thorough grasp of the vital problems of sanitary science than the late King. At the International Congress of Hygiene and Demography held in London in 1891 he delivered a memorable speech, the greater part of which will bear quoting at the present day. He said: "As one looks through our programme it is impossible not to feel distress and even horror at the multitude of dangers to health in the midst of which we have to live. Some of them appear at present to be inevitable, but the great majority may certainly with due care be averted. I can pretend to be able to judge only of a few of these dangers, but I would take as examples those to which my attention was especially drawn when I was a member of the Royal Commission on the Dwellings of the Working Classes. I learnt much there of the dangers to health which may be ascribed to the constant increase of our great manufactories and to other industries from which especially come the overcrowding of our towns, the building of huge factories, the pollutions of our atmosphere, the accumulations of refuse, the fouling of rivers, the impurities of earth and air and water. I learnt not only these dangers, but the immense difficulty of increasing or even maintaining our activity in all branches of trade without incurring heavy risks to health, more particularly in our chief centres of population. The task of averting them might have appeared hopeless, but I have rejoiced to see how much has already been done in diminishing them, and to observe how our registers bear witness to the increasing average length of life in the whole population, and to many facts proving the good influence of our sanitary institutions; but on them I do not now propose to dwell. I will only conclude from them that the good already done, and the constantly increasing knowledge of the whole subject, may make us sure that much more good may still be attained, and that neither this nor any other nation should be content until prosperity in business and all other things desirable for the national welfare are made consistent with national good health. How the many dangers which our programme indicates may best be dealt with will, of course, be discussed in the several sections. It will be no trivial work if their sources and probable remedies can be clearly pointed out, and especially if this can be done—as in a Congress such as this it should be—in a strictly scientific manner, calmly and dispassionately, without any reference to either general or municipal politics, or for any other purpose than the promotion of health. It is only on conviction such as may thus be produced that the appointed sanitary authorities can compel the changes necessary to be made, for such changes are almost always inconvenient or injurious to some, and might even seem unjust to them, unless it is made quite clear that they would be very beneficial to the community. But my hope is that the work of this Congress may not be limited to the influence which it may exercise on sanitary authorities. It will have a still better influence if it will teach all people, in all classes of society, how much every one may do for the improvement of the sanitary condition among which he has to live. I say distinctly 'all classes,' for although the heaviest penalties of insanitary arrangements fall on the poor, who are themselves least able to prevent or bear them, yet no class is free from their dangers or sufficiently careful to avert them. Where could one find a family which has not, in some of its members, suffered from typhoid fever or diphtheria, or others of those illnesses which are especially called 'preventable diseases'? Where is there a family in which it might not be asked, 'If preventable, why not prevented?' I would add that the questions

before the Congress, and in which all should take personal interest, do not relate only to the prevention of death or of serious diseases, but to the maintenance of the conditions in which the greatest working power may be sustained. In this I include both mental and bodily power; for the highest possible prosperity must be when men and women of all classes, rich and poor alike, can safely do such good and useful work as they are fit for, and for which they are responsible to those among whom they live. To this end it is essential that they should enjoy the best possible health and vigour, and to obtain these it is necessary that everything possible should be done for the promotion and maintenance of the national health. Such, then, is to be your work—let me say our work; for though I cannot further contribute to the proceedings of the Congress, I shall watch them with much interest, and shall always strive to promote whatever may be here plainly shown to be useful for the public health."

Though much progress had been made since then in our knowledge of the spread of certain diseases and prophylactic resources have been enlarged, the question here propounded, "If preventable, why not prevented?" has not yet found a completely satisfactory solution.

KING EDWARD'S MEDICAL ADVISERS.

Sir Francis Henry Laking, Physician in Ordinary to King Edward, was born on January 9th, 1847. He received his medical education at St. George's Hospital and at Heidelberg. At St. George's he held the appointments of house-physician and medical registrar, thus acquiring a large experience of disease. He became a Licentiate of the College of Physicians in 1868 and a Member in 1872. In the meantime he had taken the degree of Doctor of Medicine at the University of Heidelberg. He has been the trusted adviser of the late King and the Royal Family for many years. He has also been Physician in Ordinary to the Prince of Wales, now George V, and to their Royal Highnesses the Prince and Princess of Schleswig-Holstein. He is a Consulting Physician to the Victoria Hospital for Children. He received the honour of knighthood in 1893 and was created a baronet in 1902, and a Grand Commander of the Victorian Order in 1903. Among his other decoration are the Grand Cross of the Crown of Italy, the Grand Cross of the Immaculate Conception, Portugal, and the Grand Cross of the Dannebrog Order. He is also a Grand Officer of the French Legion of Honour. and holds the First Class (Gold) Turkish Order of Merit.

Sir James Reid, who was for twenty years in constant personal attendance on the late Queen Victoria, and enjoyed her confidence in a very unusual degree, was also one of the Physicians in Ordinary of his late Majesty, and often attended him on visits to foreign countries, and took part in the medical charge of him when ill at home. He is a son of the late Dr. James Reid, of Ellon, in Aberdeenshire, and was born in 1849. He was educated at the University of Aberdeen, where he graduated M.A., with a gold medal and honours in natural science, in 1869, and M.B., C.M., with the highest honours, in 1872, proceeding to M.D. in 1875. In 1881 he was appointed Resident Physician to the Queen in succession to the late Dr. William Marshall. Dr. Reid first acted under Sir William Jenner, who conceived the highest opinion of him, and gradually the charge of the Royal patient passed more and more completely into his hands. When Sir William Jenner's health broke down, Dr. Reid, who had been appointed Physician Extraordinary in 1887, became in title as well as in fact Physician in Ordinary in 1889. The Queen well fulfilled in the case of this most faithful and efficient guardian of her health, the Scriptural precept, "Honour the physician for the need thou hast of him." He was made a C.B. in 1889, a K.C.B. in 1895, and a Baronet in 1897. The Grand Cross of the Victorian Order was conferred upon him in 1901. Sir James was appointed Physician in Ordinary to the Prince of Wales in 1899, and was confirmed in this office when the Prince became King in 1901. He also held the appointment of Physician in Ordinary to the new King.

Sir Richard Douglas Powell, Bart., K.C.V.O., is a son of the late Captain Scott Powell, of the 23rd Royal Welsh Fusiliers, and was born at Walthamstow in 1842. He was educated at University College, London, and graduated M.B. in the University of London in 1865, and M.D. in 1866. He is the author of well-known works on diseases of the lungs and pleura, on the principles of treatment of diseases and disorders of the heart (Lumleian Lectures for 1898), and of numerous other valuable contributions to medical literature. Sir Richard Douglas Powell, who is a Consulting Physician to Middlesex Hospital, was created a Baronet in 1897, and appointed a Physician in Ordinary to Queen Victoria in 1899 and to Edward VII in 1907. He was elected President of the Royal College of Physicians of London in 1905, and held that office till a few weeks ago.

Dr. Bertrand Dawson has been physician to the London Hospital since 1906. He has made many valuable contributions to medical literature. He was appointed Physician Extraordinary to the late King in 1907.

Dr. StClair Thomson is Professor of Laryngology and Physician for Diseases of the Nose and Throat at King's College Hospital, and Professor of Laryngology and Otology in the Royal Army Medical College. In addition to a large experience as a specialist, he was for many years in general practice abroad. He is a corresponding member of the Accademia Medica of Florence, of the American Laryngological Association, of the Société Française de Laryngologie, and of other learned bodies. He is the author of bacteriological, physiological, and clinical papers on the throat and nose, and of a monograph on the cerebro-spinal fluid.

THE MEDICAL DEPARTMENT OF KING EDWARD'S HOUSEHOLD.

The medical department of the late King's household was, at the time of his death, constituted as follows:

Physicians in Ordinary, Sir J. Reid, Bart., G.C.V.O., K.C.B., M.D.; Sir F. Laking, Bart., G.C.V.O., M.D.; Sir R. D. Powell, Bart., K.C.V.O., M.D., F.R.S. *Physicians Extraordinary*, Sir F. Semon, K.C.V.O., M.D.; B. Dawson, M.D.; Sir A. R. Manby, M.V.O., M.D. *Physician to the Household*, Sir T. Barlow, Bart., K.C.V.O., M.D. *Sergeant Surgeons*, Lord Lister, O.M., F.R.S.; Sir F. Treves, Bart., G.C.V.O., C.B., LL.D. *Honorary Surgeons in Ordinary*, T. Bryant, F.R.C.S.; Sir A. D. Fripp, K.C.V.O., C.B., M.S.; R. J. Godlee, M.S. *Surgeon to the Household*, Anthony A. Bowlby, C.M.G., F.R.C.S. *Surgeon Apothecary to His Majesty and Apothecary to the Household*, Sir Francis Laking, Bart., G.C.V.O., M.D. *Surgeons and Apothecaries in Ordinary to the Household at Windsor*, W. Fairbank, M.D.; and W. Ellison, M.V.O., M.D. (jointly). *Surgeons and Apothecaries in Ordinary to the Household at Sandringham*, Sir Alan R. Manby, M.V.O., M.D. *Surgeon Oculist*, Sir G. Anderson Critchett, Bart., C.V.O., F.R.C.S.E. *Surgeon Dentist*, Sir Henry Bell Longhurst. *Dentist to the Household*, Charles Truman, M.R.C.S. *Anaesthetist*, Frederic William Hewitt, M.V.O., M.D. *Chemist and Druggist*, Peter Wyatt Squire.

All these offices in the usual course become vacant on the demise of the Crown.

British Medical Journal.

SATURDAY, MAY 14TH, 1910.

MEDICAL BULLETINS.

PEOPLE have learnt to look with suspicion on medical bulletins as to the health of royal personages. This feeling is not altogether unnatural, for such bulletins have often prophesied smooth things when a sovereign's life has been known to be trembling in the balance. Moreover, the divinity that still in the eyes of so many doth hedge a crown makes the public ready to believe in the existence of some mystery whenever it is announced that a King is ailing. This may perhaps be a survival of the mediaeval notion that when a potentate suffered the universal fate of man his death was due to poison. But it is mainly owing to the dislike of publicity in matters relating to their health that is felt by most monarchs. Perhaps they do not care to have it known that they have anything in common with ordinary clay. Hence it is the natural instinct of Court officials to keep all knowledge of anything unpleasant from royal ears. This leads to reticence on the part of the physicians in attendance when a monarch is stricken with illness. In such circumstances a King is less fortunately placed than his meanest subjects, for something is sure to leak out through one or other of the many channels leading from a throne, and he sees in the newspapers what is hidden in the diplomatic reserve of the bulletins. This is hard on him and on those near and dear to him. It has come to be taken for granted that medical bulletins are as untrustworthy as those of Napoleon's victories. From the newspapers, therefore, a royal sufferer will learn the exaggerations and unfounded rumours inevitably bred by the reticence of his doctors. For this reticence, of course, we have no word of blame; they cannot help themselves. But we are convinced that it is a wholly mistaken policy. The Iron Duke once startled George IV by saying, "Your Majesty is not a gentleman," meaning, of course, that as the head of the State he could not claim the privilege of obscurity that belongs to a private citizen. The King's health is a matter of the most direct concern to his subjects, and they have a right to know when he is suffering from serious illness. It may be added that it would not be to the advantage of the Crown if people were to become indifferent about the Sovereign's health. In the feeling of personal loyalty the monarchy has its strongest root, and it is well that a nation whose constitutional stability is mainly based on the principle of kingship should take a personal interest in the welfare of the occupant of the throne.

There are, of course, objections, not only from the official but from the professional point of view, to the publication of unnecessary details as to the illness of a royal personage. Bulletins should tell the truth and nothing but the truth; there are, it need hardly be said, cases in which they need not tell the whole truth. But they should not be wilfully misleading and in this respect no fault can be found with the bulletins relating to the last illness of King Edward VII. It is true that the mention of bronchitis, without any reference to complications, prevented people unacquainted with the actual facts of the case anticipating so rapid a termination of so common an illness in the case of a man generally believed to be unusually strong for his age; but, after all, bulletins are not issued for those who have special knowledge of disease, and the fears of His Majesty's medical advisers were expressed in language which could not be misunderstood by those who know the meticulous care with which every word of such announcements is weighed and the rigid censorship to which they are subjected. As for the old suspicion revived in some quarters by the inclusion of a laryngologist among the consultants, we have shown elsewhere that there was no ground for them whatever. If quidnuncs in clubs and drawing-rooms shrugged their shoulders with the implied meaning, "There be some who could tell an if they would," this was nothing but the gossip of people who wished to give the impression that they were in all the secrets of the Court. We felt it a public duty to try to dissipate these idle rumours by circulating through the general press an account of the King's last illness, which we took the greatest pains to make absolutely authentic; and in this we have the satisfaction of knowing that we succeeded.

In connexion with this subject we may recall that after the death of George IV the physicians who had been in attendance on the King were sharply criticized in some of the public prints for the bulletins they had issued, which, it was argued, were calculated, even if they were not intended, to mislead.[1] Sir Henry Halford took an early opportunity of justifying himself and his colleagues for the manner in which they had discharged their duty of informing the public as to the condition of their royal patient. He also discussed the whole question of bulletins in an essay "On the Influence of some Diseases of the Body on the Mind," before the College of Physicians, in February, 1831. After considering how far a patient should be told of his danger in an illness threatening life, he went on to say: "But if, in cases attended with danger in private life, the physician has need of discretion and sound sense to direct his conduct, the difficulty must doubtless be increased when his patient is of *so elevated a station that his safety becomes an object of anxiety to the nation.* In such circumstances the physician has a duty to perform, not only to the sick personage and his family, but also to the public, who, in their extreme solicitude for his recovery, sometimes desire disclosures which are incompatible with it. Bulletins respecting the health of a sovereign differ widely from the announcements which a physician is called upon to make in humbler life, and which he entrusts to the prudence of surrounding friends. These public documents may become known to the royal sufferer himself. Is the physician, then, whilst endeavouring to relieve the anxiety or curiosity of the nation, to endanger the safety of the patient; or, at least, his comfort? Surely not. But whilst it is his object to state as accurately as possible the present circumstances and the comparative condition of the disease, he will consider that conjectures respecting its cause and probable issue are not to be hazarded without extreme caution. He will not write one word which is calculated to mislead; but neither ought he to be

[1] Munk's *Life of Sir Henry Halford*. London. 1895. Page 178 et seq.

called upon to express so much as, if reported to the patient, would destroy all hope and hasten that catastrophe which it is his duty and their first wish to prevent." We may remind our readers that this was the utterance of a man who was physician to four sovereigns of this country and to many royal personages besides. We think it puts the matter in its true light.

TRAUMATIC TUBERCULOSIS.

THE occurrence of internal disease as a more or less direct result of external injury is not a matter of everyday experience, but it is nevertheless sufficiently frequent to warrant thoughtful consideration. The paper by Dr. Parkes Weber, published in the present issue, brings the question prominently forward in relation to traumatic tuberculosis, pneumonia, and pleurisy, and although primarily intended for discussion by experts in life assurance, it merits the attention of all practitioners of medicine and surgery, since it has a practical bearing upon the great question of employers' liability in which every one has a direct interest.

A philosophic physician once described certain chronic diseases as "fevers diluted by time," and the description is particularly apt when applied to tuberculosis arising as a secondary result of injury. It is this interval of time, in the case of chronic disease, which makes it so difficult for the lay mind to associate cause with effect. An injury to brain or spinal cord may be followed at once by nervous incapacity or paralysis, a direct contusion of the chest wall may cause an attack of pleurisy or pneumonia, while a poisoned wound may be directly followed by serious illness of a septic kind, and all of these may fairly be attributed to the primary injury. In the case of tuberculosis, however, the connexion is by no means so easy to determine, and a perusal of Dr. Weber's paper will demonstrate the many possibilities of accidental infection by tubercle from within that have been recorded, and will doubtless bring to many minds the explanation of similar cases in individual and unrecorded practice. Inoculations of tubercle through abrasions of the skin are only too well recognized. The risk to those who have occasion to handle tuberculous tissues is known and can be guarded against, but it is unfortunately true that a large proportion of the population of the world are subjects of internal tuberculosis in some form. The death-rate from pulmonary tuberculosis is doubtless decreasing, but it cannot as yet be shown that the proportion of persons who at some period of their lives suffer from tuberculosis is decreasing in the same ratio. The enforcement of a hygienic life has had the effect of rendering the disease quiescent in a vast number of cases and the traces of former disease are only discovered by the pathologist, but it is precisely these traces, often in the form of caseous encapsuled nodules, that are at all times capable of lighting up the disease afresh if their contents are disturbed by accidental violence. A notable case, quoted by Dr. Weber, of fatal acute tuberculosis in a presumably healthy young man of 33, following upon a chance blow upon an epididymis which was the unsuspected seat of a caseous tuberculous nodule, forms a good illustration of the possible risks to which the subjects of healed tubercle are liable. That a general infection may take place in the course of an operation upon local tubercle is proved by many recorded cases, but such dangers are remote as compared with the liability to infection by too severe manipulation of parts which may be the seat of latent disease. The ultimate results of bone-setting and joint manipulation have furnished abundant evidence of this danger, but in almost all such cases the onset of the revived disease has been delayed, and its true nature has only been recognized after an interval sufficiently long for the act which has caused it to have passed out of mind. It is not necessary that an injury should be severe in order to light up pre-existing tubercle. Very small causes have been followed by very severe effects. It is especially in the case of latent tuberculous foci in or about the joints that accidental injury may be followed by destructive disease, but in such instances there is usually sufficient evidence to prove that the disease had been pre-existent, and its relation to the injury can safely be assumed. In cases, however, where no evidence of former tuberculosis is forthcoming, the relation cannot be proved, but it must reasonably be assumed that where the possibility of inoculation from without can be excluded, the incidence of the disease must be attributed to latent foci of tubercle from within the body, not necessarily, as Dr. Weber points out, at or near the seat of injury. These considerations have a direct bearing upon life insurance, and upon the liability of employers, and hence their importance is by no means negligible. The number of persons who are the subjects of "healed tubercle," and who have resumed their ordinary round of life, is daily becoming greater, and it is not unreasonable to assume that claims for compensation where illness has supervened on injury will in like manner become more numerous. In such cases the evidence must turn upon the extent to which recognizable tuberculosis may have been present, and upon the probable result of the injury, if any, upon it, as estimated by pathological knowledge and experience. The Employers' Liability Act limits compensation to personal injury by accident, but the interpretation of personal injury may in time to come be extended beyond the limits of immediate results.

It is not probable, in cases where no latent focus of disease could reasonably be suspected, that any judicial authority would interpret the resulting illness as a personal injury arising from the accident. In the more numerous class of cases where there are reasonable grounds for assuming the possibility of latent tubercle, a different view might be taken, and it follows that the employer of labour should exercise more than ordinary care in the selection of workmen, to ascertain the presence or absence of any tuberculous taint in his or her previous medical history. Apart, however, from this aspect of the question, Dr. Parkes Weber's cases suggest the greater need for continued observation of persons with a tuberculous history who may have suffered surgical injuries. The fact that all evidence suggestive of latent infection from within may be withheld for three weeks or a month has always to be borne in mind, and apparent recovery from the results of an accident to a tuberculous patient must not be assumed to be complete until such time has elapsed. Violent injury to the chest walls may be followed by pneumonia or by pleurisy, but such sequence is usually direct and the ultimate course of the inflammation must largely depend upon the presence or absence of pathogenic micro-organisms. Dr. Weber describes and discusses the condition known as "contusional pneumonia," which occasionally follows direct injury and has been artificially produced and studied by Külbs and others. Such cases, whether limited to the pleura or extending to

the lungs, may in themselves serve to light up latent tuberculosis, and this may not declare itself till the first effects of contusion have passed away. In some instances the development of simple pneumonia has been delayed, but as a rule the direct connexion with the primary injury is manifest, and it is probable that in either of these conditions it would be judicially held that they must rank as personal injury by accident.

KING GEORGE V.

IN the name of the British Medical Association and of the whole medical profession we join with all other classes of the subjects of these realms in offering our loyal homage to the new Sovereign. King George, like his father, takes an active interest in all that concerns the public health and the relief of suffering. He has often astonished members of the medical and administrative staffs by his minute and accurate acquaintance with all the details of the management of a modern hospital. His Majesty has been President of King Edward's Hospital Fund for London since its institution in 1897. He has always shown appreciation of the medical profession, and has more than once gone out of his way to show courtesy to its members. During his visit to India in 1901 he insisted on breaking through the official programme which had been drawn up for his stay in Calcutta, in order to visit the General Hospital, under the guidance of Sir R. Havelock Charles. He graciously consented to become an Honorary Member of the British Medical Association, and was accordingly elected at the annual meeting held in Swansea in 1903. We wish King George V a long and prosperous reign.

NEW MEDICINES, SECRET REMEDIES, AND SPECIALITIES.

PRIVATDOZENT DR. C. BACHEM, of Bonn, has been invited by the editors of the *Berliner klinische Wochenschrift* to publish analyses of new medicines, secret remedies, and specialities, and to criticize "the justification of their existence." The articles will deal with nostrums, etc., in a somewhat different manner from that in which the subject is dealt with in our columns as well as from that which Zernik has adopted. Dr. Bachem does not state that he has analysed any of the preparations with which he deals, but he gives information which, if it reaches the public, must shake any confidence it may place in the various preparations. The matter of his first article is of general rather than of special interest for English readers. Having chosen the subject of "female remedies," he shows that a large number of them are nothing more or less than powdered chamomile flowers, and that the advertisements of these preparations describe them as being useful for all "irregularities," etc., the wording usually being such that the average person would understand that the object of giving them was to induce abortion. Needless to say, they are quite inert as abortifacients; and even when the pregnant woman finds out that she has paid a high price for a perfectly useless article, the fact that she aimed at the induction of abortion effectually closes her mouth. In this way the traffic continues without hindrance. A menstruation powder called "Gloria," which costs 3s. without carriage, is found to consist of about 35 grams of chamomile, and would cost about 3d. at the chemist's. It is supplied by a bookshop keeper. "Excelsior," which costs 4s. (or 6s. extra strong), consists of 45 grams of the same powder. "Citro" costs 3s. for 45 grams, while Drake's menstruation powder appears to be more expensive; a sample of 8 grams cost 1s. "Japol" costs 3s. for 35 grams. All contained only chamomile. "Triumph menstruation drops" are supposed to consist of serpillus herb (600), rosemary (250), common chamomile flowers (600), centaurius herb (550), dilute spirit (5,000). A bottle costs 3s. 6d. for 75 c.cm. Bachem says the preparation is no doubt harmless, but it is at the same time inert. The firm which deals in this also advises the use of "Junogen" for thinness, "Heralin" for corpulency, "Officin" for impotence, and "Probat" as a preventive measure for women. Dr. Bachem describes the way in which these preparations are advertised in the comic papers, and the difficulty in prosecuting the manufacturers. In some cases when a person applies for particulars, she receives a letter offering to "treat" the lady, and asking her to fill up a paper asking a number of questions. These include, when the past period took place, whether she has previously been pregnant, whether the breasts are painful, etc. The advertiser states that the fees for treatment and drugs for the course of three weeks will be 12s. Dr. Bachem has collected some twenty addresses of persons who undertake this form of treatment, and is prepared to give these addresses to persons or institutions interested in this form of quack traffic.

DECREASE OF MEDICAL STUDENTS IN AMERICA.

WE learn from the *Boston Medical and Surgical Journal* that there has been a gradual decrease in the number of medical students throughout the United States. In the academic year 1908–9 the total number of students of medicine in the States was 20,554, as against 21,011 in 1907–8 and 24,930 in 1902–3. Our contemporary thinks this decline somewhat remarkable, as it coincides with a period of financial prosperity, increasing population, and of constantly enlarging facilities and endowments for medical teaching and research. One reason suggested for the falling-off is that the increasing use of motors has lessened the number of doctors needed for the service of the public. Another influence making in the same direction is the advance of preventive medicine, owing to which there are fewer sick requiring attendance. The prevalence of disease is still further lessened by the greater attention given by State and municipal authorities to local and individual conditions of health. Moreover, i is said that the insurance companies and other agencies teach people to take better care of themselves, and thus help to diminish the need of doctors. Our contemporary, however, suspects that, while all the causes may be operative in varying degree, there is a deeper underlying reason, psychological rather than economic. As the art and science of medicine become more and more highly specialized they appeal to a more and more limited class, as demanding a more highly developed type of mind for their successful study. In the America of to-day it is said many occupations of business, finance, mechanics, and engineering, offer not only problems that appeal with greater force to a large number of people, but far larger prospects of pecuniary profits than they did even ten years ago. While during this time the problems of medical science have become more complex and its practice not less difficult, the substantial rewards are no greater

or surer except for the very few. No one, therefore, is likely to be attracted by the profession of medicine unless he has an intellectual love of the study for its own sake. It is remarkable that among the causes of the decline in the number of those who enter the ranks of the medical profession enumerated by our contemporary, no mention is made of some which we think should be taken into account. The chief of these is that, if the doctor's occupation is not yet gone, it will be before long, except for the giving of death certificates. In consequence of the enterprise of the manufacturing chemist, who sends out broadcast pamphlets describing in more or less lurid fashion the diseases to which mankind is subject, and painting in attractive colours the marvellous effects of his remedies, vast numbers of people doctor themselves. Then there is the competition of quacks: of these there are many kinds, and America, with its numerous unorthodox medical schools—eclectic, osteopathic, and so forth—offers more facilities for the development of quackery than any country in the world. The wonder workers of various kinds, notably the Christian Scientists, must be taken into account. The American people, shrewd as it is in the pursuit of the almighty dollar, shows the most childish credulity in things concerning health. Of course a free people will, as Gregory said, insist on going to the devil in its own way, but it is a pity that the "independence of thought" of which it boasts should so often manifest itself in the worst form of bigotry—that which is founded not on intolerance of what is deemed baleful error, but on ignorance and stupidity. The decrease in the number of medical students, which is by no means confined to America, may be taken as a proof of the success with which the medical profession is fulfilling its aim. That aim, which it pursues with an unselfishness to which there is no parallel in any other avocation, is to abolish disease, and thereby destroy the reason of its own existence.

THE TYPHOID CARRIER.

Dr. Brückner has been making a systematic reinvestigation[1] of the urine and faeces of persons known to have suffered from an attack of typhoid fever some years previously. In discussing the results of other inquirers he notes that Forster found that 2 per cent. of typhoid fever patients become chronic carriers; Klinger in a series of 482 recoveries obtained 1.7 per cent.; Kayser found 1.5 per cent. in 200 cases; Conradi found 6 per cent. in 400; Frosch, Lentz, and Kirchner each found 5 per cent. in their investigations; Schneider found 3 per cent., Hetsch 4.62 per cent., and Park 5 per cent. These statistics are sufficient to show the seriousness of the danger, which may, Dr. Brückner thinks, be even greater than is indicated by some of the above percentages. He points out that the methods for demonstrating the bacilli in faeces are not yet perfect; the excretion of bacilli is often intermittent, and hence may escape detection; and the bacilli, though thriving in the gall bladder, may sometimes be dead by the time they arrive at the lower end of the intestinal tract. His own inquiries were conducted in the neighbourhood of Strassburg; he endeavoured to obtain for investigation the urine and stools of 566 persons known to have been attacked by typhoid fever in previous years. It was found that 45 of these were dead, 170 could not be traced, and 35 of the remainder refused to provide material. This leaves 316 persons from whom material was obtained and investigated. In 12 cases (3.8 per cent.) bacilli were found, the micro-organism being the typhoid bacillus in 9 instances and the *Bacillus paratyphosus* B in 3. Amongst the 316 cases 104 were children under 15 years of age, and in only one of these were the infective bacilli found. Limiting the statistics to adults, we have 11 positive cases (6 men and 5 women) out of 212, a percentage of 5.2. Dr. Brückner considers this an unusual distribution, as women are usually found to be more frequently carriers than men. He found, however, that with two exceptions the bacilli from the male cases were scanty in number, whereas in the women they were always abundant. With regard to the previous bacteriological history of cases where Dr. Brückner obtained positive results, the following details are of interest. Case I suffered from typhoid in the summer of 1906, and after six negative examinations (four of the urine and two of the stools) in August and October of that year was pronounced bacteriologically free from the infection. Dr. Brückner made five re-examinations, in December, 1908, and January, 1909, and found typhoid bacilli on each occasion in the stools and once in the urine also. Case II, infected in 1906, was known to be a carrier up to April 26th, 1907, when the last examination with a positive result was made. Three subsequent examinations on June 7th, September 23rd, and October 27th, 1907, yielded negative results, and the man was then considered to be free from danger. But in December, 1908, and in January and March, 1909, Dr. Brückner found him to be still harbouring bacilli. Case IV fell ill in October, 1906; after three negative examinations in November of that year she was pronounced free from bacilli. But in February and March, 1909, Dr. Brückner found typhoid bacilli in the stools. Case V, after three bacteriological examinations with negative results in June and July, 1906, was pronounced free from infective bacteria; but on February 16th, 1909, the author found typhoid bacilli in the stools; further investigations on February 27th and March 6th gave negative results. Case VII suffered from paratyphoid fever in 1906, and after three negative bacteriological examinations was pronounced free from bacilli; but in March, 1909, the author found *Bacillus paratyphosus* B in the stools, the urine being negative. Case X, a youth 17 years old, was peculiar. In the summer of 1908 he had undoubted typhoid fever, confirmed by the discovery of the bacilli; when he was convalescent, three bacteriological examinations proved negative; but in March, 1909, the author discovered *Bacillus paratyphosus* B in his stools. Dr. Brückner concludes from his investigations that bacteriological examination conducted a long time after the disease has occurred is a highly important means of detecting carriers, and that persons who during their convalescence took a long time before the bacilli disappeared are in especial need of repeated reinvestigation. The need of prophylaxis in this direction is indicated by the fact that out of 276 cases of typhoid fever traced in South-West Germany to carriers, 228 occurred before the carrier was discovered, and only 48 (which is equivalent to 0.7 per cent. of all the cases recorded during the three years under review) after the carrier had been notified.

[1] *Arbeiten aus dem Kaiserlichen Gesundheitsamte*, Band XXXIII, Heft 2, 1910.

INSANITY IN ITALY.

With a population of about 35 millions at the end of 1907, Italy counted 46,442 insane patients distributed among 171 asylums and homes; in addition there were 1,920 patients more in colonies, bringing the total up to the number 48,362. Of these, 1,433 are inmates of homes for the mentally deficient. The figures show an increase of about a thousand over those published officially twelve months previously. In 1874 less than

13,000 insane patients were being treated in the Italian asylums, the population then being about 25 millions; but to conclude from these figures that insanity is on the increase in Italy would be quite wrong, as Tamburini[1] points out, for in 1871 there were more than 44,000 insane in the country, of whom less than 13,000 were in public institutions. Since that year, however, statistical returns as to the numbers of the insane not under control in public institutions have not been made, so that the means for comparing the total numbers of the insane in 1871 and at the present time are lacking. But there seems to be no reason for believing that insanity, speaking generally, is on the increase in Italy. Indeed, with certain forms of madness, the latest figures show a progressive and satisfactory diminution. Thus insanity due to pellagra, of which so much has recently been heard, accounted for 945 patients in 1874, 1,741 in 1889, 2,401 in 1899, but only 1,567—780 men and 787 women—in 1907, in spite of the fact, already mentioned, that the percentage of the insane confined in lunatic asylums is increasing. Hence, there seems reason to hope that pellagrous insanity will ultimately disappear from Italy. With insanity due to alcoholism, on the other hand, the figures unfortunately point to the opposite conclusion. In 1874 the cases of alcoholic insanity numbered 204; in 1895 they were 1,227, and in 1907 they were 2,271 in number. Tamburini notes that a history of alcoholic excess in the parents or ascendents can be obtained in no less than 85 per cent. of the insane, and deprecates the cure for the vinicultural crisis recently recommended by a distinguished Italian statesman—that every good consumer should triple his daily consumption of wine; 2,089 of these patients were men, 182 women. Alcoholic insanity appears to be commonest in Umbria, Piedmont, and Liguria.

[1] A. Tamburini. Sulla statistica degli alienati in Italia nel 1907. *Riv. sperim. di Freniatria*, Rome, 1909, xxxv, p. 343.

THE OCULAR SYMPTOMS OF ARTERIO-SCLEROSIS.

THE early diagnosis of arterio-sclerosis—a disease not confined to the aged—is a matter of supreme importance to the patient, because it is only at the commencement of the malady that effectual measures can be taken to combat the pathological processes, which if allowed to develop unchecked lead almost invariably to early death. Careful ophthalmological examination often enables a true diagnosis to be made at a stage when recovery is not impossible. Osler has stated that the vessels of the head, of the heart, or of the kidneys may be in a state of advanced sclerosis without any change in the palpable arteries. The disease may progress more rapidly in the large vessels, but the most serious form, and the form most frequently met with in young persons, is that in which the smaller vessels are chiefly affected. It is therefore of the highest importance to recognize sclerotic changes in the smaller arteries, and this can be accomplished only by detecting the characteristic changes in the retinal vessels. Unfortunately it by no means follows that, because the retinal vessels are normal, sclerosis is absent in other small vessels in the body; on the other hand, the full brunt of the disease may fall upon the retinal arteries, and the extensive changes present in the retinal vessels may not be accompanied by general arterio-sclerosis. Nevertheless, the retinal vessels are the best indicators of the state of the small vessels elsewhere that we possess. The retinal vessels may be extensively sclerosed, and yet the kidneys may have normal arteries, and albuminuria may be absent even when the kidneys are granular. When arterio-sclerosis is present the prognosis becomes important both from the point of view of vision and of life. We are all familiar with the general prognostic significance of albuminuric retinitis. The large majority of the patients die within two years, and a considerable percentage within the first year. In ocular sclerosis, Woodruff says, "Not until the gross lesions have shown themselves in the eye can we positively say that a fatal termination is apt to occur. The mere fact that such conditions exist in the retinal vessels does not warrant us in assuming that the disease is going to progress to such a stage as to affect the functions of the kidneys or to cause degenerative changes in the brain." Gunn stated that only when sclerosis had advanced so far as to cause haemorrhages in the retina could we speak of the probability of an approaching cerebral haemorrhage. Schweinitz, who has written extensively on this subject, has divided the retinal signs into the suggestive and the pathognomonic. Suggestive signs are uneven calibre and undue tortuosity of the arteries, increased distinctness of the light reflex from the vessels, and alteration in the calibre of the veins. They suggest an under-exposed photograph which has been intensified, but they are subtle changes which can only be detected with any degree of certainty by the expert ophthalmoscopist. Pathognomonic signs are marked irregularity in the calibre of the arteries, a beaded appearance, the "silver-wire" appearance, and the indentation of the veins by the arteries at points of crossing. Late in the disease we may get perivasculitis, haemorrhages, and oedema of various parts of the retina. When haemorrhages are present the blood pressure is generally raised. Subconjunctival haemorrhages are often, if continually repeated, the heralds of approaching apoplexy—little leaks which presage a larger outflow. These symptoms were admirably described in a paper read to the Ohio State Medical Society at Cincinnati, May, 1909, and published in the *Annals of Ophthalmology*, October, 1909, and our remerks have been chiefly gathered from this source.

CALCIUM CHLORIDE AS A HAEMOSTATIC.

IN a paper recently read before the Royal Academy of Medicine in Ireland, an abstract of which was published in the JOURNAL of February 26th, page 507, Professor B. J. Collingwood criticized the belief that calcium chloride acts as a haemostatic by increasing the coagulability of the blood. His experiments *in vitro* yielded no evidence that calcium chloride increased the coagulability, so that the clinical effect attributed to the salt must be due to some other factors than its direct influence on this. Professor McWeeney expressed the opinion that the haemostatic effect of calcium was due to its action as a general vaso-constrictor. Mr. Wheeler, alluding to the practice of administering calcium chloride for some days before the operation of prostatectomy, suggested that, if it were effective, it could hardly be due to vaso-constriction, which would not last so long; he added that Mr. Moynihan had given up its use and relied on the injection of an alien serum, such as horse serum. Professor Collingwood, in his reply, said he believed the injection of serum to be a more rational treatment for the prevention of haemorrhages than calcium; but it should be remembered that old and new serum might differ in their effects, and that serum of four days might actually inhibit coagulation. The same question has recently been discussed by M. P. Ciuffini,[1] who comes

[1] *Il Policlinico*, 1909, vol. xvi, p. 12.

to the same conclusions as Professor Collingwood as to the inability of calcium chloride to influence the coagulability of the blood. On the other hand, he found subcutaneous injection of non-sterilized gelatine highly active, but, as by its use there is grave risk of inducing tetanus, and as sterilized gelatine proved quite inert, its practical value as a remedy is small. Ciuffini found that iron perchloride given by the mouth acted promptly and energetically, although not so well as non-sterilized gelatine. He also studied the effects of ipecacuanha, formerly used in severe haemoptysis and other haemorrhages by Trousseau. He found that the effect of ipecacuanha was to increase slightly the coagulability of the blood, an effect that disappeared in twenty-four hours; it had little or no effect upon the blood pressure, which was 108 mm. of mercury before the administration and 113 afterwards. He recommends as a substitute for the hypodermic injection of non-sterilized gelatine the use of an artificial gelatine made by mixing iron perchloride with a concentrated solution of gum arabic. This when warmed liquefies so that it can be forced through a syringe, and he finds it to act better than any other remedy except non-sterilized gelatine. He regards it as quite rational to employ fresh blood serum or antidiphtherial serum or even simple normal salt solution in the treatment of severe haemorrhages, although to either of these the mixture of gum arabic and iron perchloride might be added with advantage. In using serum for haemostatic purposes, a practice which is evidently finding favour, it is obviously important that it should be fresh, as the fibrine ferment which it contains rapidly diminishes by keeping; it may not always be possible to fulfil this condition when it is necessary to arrest haemorrhage without delay, yet old serum may actually do more harm than good.

AN EXTENSIVE OPERATION FOR VULVAR CANCER.

Modern gynaecology, like Strafford of old and general surgery at the present time, has become thorough. A radical feat of operating skill, where the principles of Halsted and Wertheim were followed, was related recently by M. Morestin of Paris to the Société Anatomique de Paris.[1] A woman, aged 59, was admitted into the Hôpital Tenon in March, 1909, suffering from a bulky ulcerated tumour in the left groin. In February, 1903, a surgeon had operated upon her for epithelioma of the vulva, already advanced, the glands of the right groin being involved. The labia minora, the clitoris, and all the glands and subcutaneous tissue in Scarpa's triangle on the right side were dissected away. A few glands were also removed from the left groin, but nothing positively indicated, in the surgeon's opinion, invasion of that side. Nevertheless, a big tumour rapidly developed under the cicatrix in the left groin, with pain and haemorrhages. The use of the left leg was soon lost. On March 13th Morestin performed an extensive operation for the removal of the big fungating bleeding mass covering Scarpa's triangle without success. A curved incision was made from the inner side of the thigh, passing below the tumour to beyond and behind the great trochanter. A second incision began at the inner extremity of the first, and was carried through the labium majus, the anterior commissure of the vulva, the skin over the symphysis, and the integuments of the abdomen up to five finger-breadths above Poupart's ligament, passing over the crest of the ilium to join the outer extremity of the lower incision behind the great trochanter. This upper incision, measured by the curve, was over 17 in. long. After free exposure of the superficial muscles, part of the crural arch and 1½ in. of the aponeurosis of the external oblique were resected as well as the upper portions of the adductor longus and pectineus; 2¾ in. of the femoral vein were resected, and all branches of the artery except the profunda were ligatured and divided close to its wall. The wound made by these dissections measured vertically 9¾ in. by nearly 10 in. in breadth. The cut edge of the aponeurosis of the external oblique was drawn down and sutured to the psoas, pectineus, and adductor longus, and the sartorius was then fixed by suture over the bare and unprotected femoral artery. As the patient was a multipara and had become emaciated, he was able, by freeing the integuments of the abdomen up to the umbilicus, the false ribs, and the iliac crest to bring down a flap and fix it to the lower end of the wound. The thigh was kept flexed. The patient recovered. After some complications, including a dental abscess, a recurrent tumour developed in Scarpa's triangle, and on July 17th Morestin amputated the left lower extremity through the hip joint. Of necessity, he was obliged to make a very big posterior flap, as all the soft structures in front had to be sacrificed. Great trouble was experienced in securing the femoral artery, as its wall was softened, and forcipressure was applied for five days to the left external iliac. The edges of the posterior flap united to the edges of the wound in the groin by first intention, excepting at the points of issue of the pressure forceps. Convalescence was delayed by osteomyelitis of the lower jaw; eventually a sequestra was removed, the jaw healed altogether, and the patient recovered, leaving hospital in the middle of September. At the date of the report—November 11th, 1909—there was no sign of recurrence in the cicatrix of the amputation or elsewhere. M. Morestin certainly deserves credit for his bold action in sacrificing the left lower extremity so soon as he saw that his former operation had failed; he dwells, however, more on that very free removal of infected and suspicious tissue than on the amputation. In short, he implies that whenever cancer of the vulva shows the least sign of extension to the glands in the groin thorough resection of the glands and the structures around them is good surgery, even though a trunk vessel be sacrificed.

[1] *Bulletins et mém. de la Soc. Anatom. de Paris*, November, 1909.

THE DIAGNOSIS OF ORGANIC HEMIPLEGIA.

Some time ago (April 3rd, 1909, p. 862) we drew attention to the valuable observation of Dr. Hoover on the involuntary tension of the muscles of the sound leg when a patient suffering from organic hemiplegia tries to raise the paralysed leg from the bed, as shown by the pressure of the heel of the sound side on the mattress, a sign which is entirely absent in hysteria or simulated hemiplegia. The value of observations of this kind is so great that a summary of an excellent article by Dr. Lhermitte[1] will be useful, since he gives the pith of several contributions to this point of diagnosis which are well worth noting, if not quite so striking as that of Dr. Hoover. The first is that of M. Souques, which he calls the "sign of the interossei," or the "finger sign"; it is shown if a hemiplegic patient tries to raise the partially paralysed arm, when the fingers are extended and abducted like the sticks of a fan; it is of course absent when the hemiplegia is complete. The second was described by MM. Klippel and Weil, and may be called the "thumb sign"; it is observed in the contracted hand of organic

[1] *La sem. méd.*, March 16th p. 121.

paralysis, and consists in the spontaneous flexion of the thumb when the fingers are passively extended; it is never present in hysterical contracture, and is therefore a useful sign. The third is due to M. Raïmiste; it is only to be observed in flaccid hemiplegia, and is elicited by raising the patient's paralysed hand to a vertical position, the elbow resting on a table or the bed and the hand and arm being brought into the same straight line; if the observer slips his hand quietly down so as to support the forearm only, the hand, if paralysed, will drop to form an angle at the wrist, but in cases of hysteria or simulation it remains upright. The fourth is also due to M. Raïmiste: If the patient, when lying on his back with his feet together, is asked to abduct the sound leg while the observer opposes the movement with both his hands, the paralysed leg will be seen to be slightly abducted; or, if the feet are separated and adduction is asked for and opposed in the same manner, the paralysed limb is slightly adducted. The fifth was described by M. Néri, and is based on the hypertonicity of the flexors of the paralysed leg; if the patient is lying on his back, it will be found that the sound leg can be raised from the bed to an angle of 70 to 75 degrees with the plane of the bed, but the paralysed leg can be raised only to 40 or 50 degrees. In addition to these points of diagnosis, Dr. Lhermitte draws attention to the observation of M. H. Claude, who believes that a favourable prognosis may always be given in those cases of hemiplegia in which movements of the paralysed limb can be produced by pinching or pricking the skin of the thigh or arm or by making forced movements of pronation and supination.

CYCLODIALYSIS IN GLAUCOMA.

THE operations practised for acute glaucoma are, as a rule, highly satisfactory, often leading to permanent cure, but those performed to stay the course of the chronic variety are generally only palliative, often useless, and not infrequently harmful. An unprejudiced examination of the true nature of glaucoma will show why this is so, and why chronic glaucoma may be said to be an incurable disease. There are two factors in glaucoma—a rise of tension and an essential atrophy of the optic nerve. Examples of the disease may be arranged in a graduated scale; at one end we have acute inflammatory and congestive cases with very high tension associated with no atrophy, at the other end of the scale we find cases where the atrophy is great and there is no rise of tension whatever. All other types can be arranged between these two extremes, but it will be seen that there is a marked antithesis between the rise of tension and glaucomatous atrophy. As we go up the scale we get less and less tension, but more and more cupping. It has long been held and taught, and has been copied from textbook to textbook, that the glaucoma cup is the result of tension, either of high tension or of long-continued slight rise of tension. It is also taught that the cup formation is a slow process. The absolute facts are that those cases where tension is the prominent symptom have no cupping, and the deepest cups are found in cases where no rise of tension, or at most only very slight, rises can be detected. Another fact hard to explain on the pressure theory is that a total cup has been seen to develop in a fortnight in a case which had been iridectomized and which had no tension whatever. Finally, Elschnig and others have shown that the glaucomatous atrophy is a condition with histological characteristics of its own which are totally distinct from ordinary optic atrophy, and which could not be produced by pressure. Admitting, therefore, that in glaucoma there are two factors—high tension and essential progressive atrophy, which is quite independent of the tension—it is obvious that no operation can benefit those cases in which the atrophic side is well marked, and that the success to be expected from an operation will be greater the more the symptoms can be referred to pressure rather than to atrophy. In other words, no operation can be expected to cure chronic glaucoma where there is no evidence of raised tension. The classical operation for acute glaucoma is iridectomy, introduced by von Graefe. In the vast majority of cases this is, and probably always will be, the operation of election. But sometimes iridectomy is almost technically impossible, and often it has no lasting effect. To meet these cases Heine has introduced an operation known as cyclodialysis. This procedure is well described by Pyle in the *American Journal of Surgery* for December, 1909. The object of the operation is to open up a permanent communication between the anterior chamber and the suprachoroidal space by detaching the ciliary body partially and breaking down adhesions and sclerotic processes at the angle of the anterior chamber. The conjunctiva is reflected back and the sclerotic exposed. A small incision is made and carefully deepened down to the ciliary body. A spatula is introduced, passed into the interior chamber in front of the iris, and by a sweeping movement the required detachment is made. The effect is only obvious after a few days. The operation is advised in certain cases by Meller in his new book describing the methods in vogue at Vienna in Fuchs's clinic. Elschnig, in the latest edition of Czermack's work on ophthalmic surgery, speaks well of it, and it certainly would appear to be a useful alternative in certain exceptional cases. The final judgement can only be given by each individual surgeon when he has given the procedure a fair trial. Krauss, writing in the *Zeitschrift für Augenheilkunde*, Band xx, p. 50 (Zur Frage der Cyklodialyse) criticizes the operation very adversely. On clinical grounds he is of opinion that the effect is only a transient one, and he has come to this conclusion after examining the notes of Heine's own cases. Krauss has performed the operation upon several cats and rabbits, and he has found that instead of a permanent communication between the anterior chamber and the superchoroidal space there was only a mass of cicatricial adhesions. These results are confirmed by similar researches carried out by Wichodzew and Judin. Examination of eyes enucleated after cyclodialysis has failed to show that the desired communication has been attained, and in certain cases there was much cicatricial contraction. Krauss believes that when cyclodialysis permanently lowers tension it has only succeeded because the ciliary body has become atropic, and that the transient success is only the herald of the total loss of the eye. In the face of these divergent opinions we can only say with the logicians—*solvitur ambulando.*

As readers will remember, there was opened last year in Montreal an institution for the study, prevention, and cure of tuberculosis, presented to the city by Colonel Burland and his sisters in memory of their parents. His late Majesty gave permission for it to be named the "Royal Edward Institution," and by pressing an electric button at Buckingham Palace opened it by cable on October 21st. Of this event we have, thanks to the courtesy of Colonel Burland, received an interesting memento in the shape of a reproduction of the account of the proceedings prepared for His late Majesty. It is illustrated by beautiful photographs, the text being in Gothic characters. The royal copy was printed on heavy vellum and richly illuminated.

ARTIFICIAL RESPIRATION IN NEWBORN INFANTS.

From communications which have reached us, it would appear that the prominence given during the last few years to Schäfer's method of effecting artificial respiration has given rise among midwives and others to the idea that this method should be substituted for all those previously in vogue in dealing with children born in a state of more or less marked asphyxia and failing to breathe of their own accord, despite the fact that the heart is beating. It is true that the condition of such a child is, so far as physiological causes are concerned, not essentially different from that of the persons for whose benefit Schäfer's method was primarily devised. But on the other hand, its lungs have never been completely dilated, its muscles are undeveloped, and its chest wall mainly composed of cartilage. Hence the thoracic elasticity, on which the success of Schäfer's method mainly turns, is almost completely lacking.

Of the very large number of methods suggested at one time and another of applying artificial respiration to such children, those which, on the whole, seem most favoured by writers of textbooks and practical obstetricians at the present date are the same as those which Champneys,[1] in his elaborate experiments on the dead body, described by him in papers read before the Medico-

Fig. 1.

Fig. 2.

Reproduced from an illustration in Garrigues's *Textbook on Obstetrics* by permission of Messrs. Lippincott and Co.

Chirurgical Society in the years 1881 and 1882, seems to have found the most effective in filling the chest with air. These are the Silvester method and the Schultze swinging method.

Champneys found that when carefully used the proportion of air introduced into the chest by the Silvester method was greater than that resulting from any other process, and that one detail not mentioned by Silvester was of material importance in augmenting it. The arms should not only be seized above the elbow, but should be held everted while being raised above the head during the inspiratory movement.

The Schultze swing was found to ventilate the chest somewhat less fully, but nevertheless to be quite effective. The method is probably often used by those who have never heard of it under that name, for it was described in some English textbooks within a very few years after Schultze[2] first brought it forward formally in 1871, but not under the name of Schultze, nor as a new device.

The operator, standing with his legs a little apart and the upper part of his body inclined slightly forward, holds the child in front of him with its back toward his separated knees (Fig. 1). His grasp of it is secured by placing his right and left thumbs respectively over the child's right and left shoulders on the inner side of the coracoid processes and vertically down the thorax, as far as they will reach; his forefingers he places in the respective axillae, under the heads of the humeri, and spreads the remaining fingers over the back of the thorax, the wrists being brought as close together as possible, so as to secure the head steady between them. Careful attention to the position of the fingers and wrists is necessary, not only to ensure the child from falling, but to prevent the subsequent movements being of a jerky, flail-like character. The child thus held is in the first or inspiratory position, and the whole of its weight must be supported by the forefingers, no pressure whatever being exercised at this moment by the remaining fingers and the thumbs.

The change to the second, or expiratory position, is brought about by swinging the child's body forwards and upwards until its pelvis is higher than its head and topples over on to its abdomen, bringing its legs so as to swing between the child's head and the operator's face (Fig. 2). In causing this movement the operator is careful to use a pure shoulder swing until his arms are horizontal; he then relaxes his shoulder-blades and elbow-joints slightly, the result being that he catches, so to speak, the weight of the child's pelvis on the remainder of its trunk, its body only bending in the lumbar region, and the descent of its legs into the position shown and described being quite gentle and gradual.

The change back to the first position must immediately follow. This, too, should be a definite swing from the operator's shoulders, anything in the nature of a flail-like turn of the child's pelvis on its spine being carefully avoided. At the moment the child is in the expiratory position its chest may be further compressed by the operator's thumb and fingers, but the pressure must be relaxed so soon as the swing towards the inspiratory position commences; though, of course, during its progress the support given to the back of the thorax by the fingers must be sustained. This movement should be repeated ten or twelve times a minute, there being a pause of a few seconds not in the expiratory but in the inspiratory position.

Should the movements have to be repeated frequently, it is well to combine them with immersion in hot water, so as to maintain the child's temperature. Pressure brought about by Schultze's swings has some action on the heart as well as on the lungs.

There is another movement which was first formally described about the same date as the Schultze swing, and is known in America as the Byrd method.[3] It consists in seizing the child at the back of its shoulders and neck and the back of its pelvis with the right and left hand respectively, and alternately bending the child's body forwards and backwards. Inspiration takes place when the body is bent backwards, expiration when it is bent forwards; when in the latter position the child should be held face downwards so as to facilitate the escape of inspired fluids. The mechanical theory of this manœuvre is much the same as that of Schultze's swing, but its respiratory action is less powerful, and the chief value of the method lies in the fact that it may be carried on while the child's body is immersed in a hot bath. It is thus applicable to cases in which the asphyxia has lasted so long that the stage of wax-like pallor and intermittent heart action has been reached.

[1] *Medico-Chirurgical Transactions*, vols. lxiv and lxv.
[2] *Der Scheintod Neugenboren*, Jena, 1871.
[3] *Baltimore Medical Journal*, 1870, vol. i, p. 646.

On April 27th the Duchess of Marlborough, in presiding over the annual meeting, at Sunderland House, of the Invalid Children's Association for London, announced that the association had acquired a special home, and promised a contribution of £200 if the further £300 required to maintain it could be raised. The Bishop of Bath and Wells dwelt on the need of personal service, and Dr. Hutchison and Mr. D'Arcy Power spoke on the medical aspects of the work of the association. The annual report was adopted unanimously; and we hope that the demand of the society, which has its offices at Denison House, Vauxhall Bridge Road, S.W., for more visitors for invalid children will receive a ready response.

Scotland.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

MEDICAL TEACHING AT EDINBURGH UNIVERSITY.

REFORMS of medical and surgical teaching at the University of Edinburgh were submitted in reports laid before the General Council of the university on May 4th, and after some discussion were adopted. The committee appointed to consider the question of medical education in Edinburgh reported that they were of opinion that the questions to be considered could best be treated under two main heads, namely: (1) The medical curriculum regarded purely as a course of study, and (2) the mutual relations between the bodies concerned in medical education in Edinburgh, namely, the university, the Extra-Mural School, and the Royal Infirmary, appointed two subcommittees to deal separately with the questions falling under each of these heads. The latter subcommittee has not yet submitted a report, it having been thought advisable to postpone its deliberations until the report of the subcommittee on the medical curriculum was completed. With regard to the subjects of the first professional examination, the former committee has arrived at the unanimous conclusion that attendance —prior to registration as medical student—on any of those subjects ought to be accepted from any institution, whether school or college, which after due investigation may be approved by the University Court on the recommendation of the Senatus. They desire to point out that it would be greatly to the advantage of a student to have passed one or more of these subjects before the actual commencement of the medical curriculum, and they recommend that students who present themselves from any such recognized institutions be admitted to examination in one or more of the subjects of the first professional examination without requiring attendance in the course or courses of instruction for such object within the university, provided that the attendance on such subjects prior to registration shall not be held to constitute any part of the five years' course of professional study. One of the reasons which has led the committee to make this recommendation is that attendance on any subject of the first professional examination which can be taken at school and passed prior to the commencement of the medical curriculum would enable so much more time to be devoted to the medical part of the curriculum. A difficulty in adopting the plan suggested is created by the fact that the General Medical Council has up to the present refused to recognize instruction in schools, although it is recognized by the Conjoint Examining Boards of England, Scotland, and Ireland. The statistics of the Conjoint Board of the Royal Colleges in England show that instruction in the preliminary sciences in English public schools is relatively satisfactory, since candidates coming up from these institutions exhibit a smaller number of rejections than those coming up from the medical schools themselves. There is reason to believe that the public schools of Scotland would be able to show equally good results.

The committee gives a proposed time-table for the several years of professional study. The time-table is drawn up for students who enter in October, but it is applicable with little modification to those who enter in May. The committee is of opinion that it is advantageous to the student to begin the curriculum in May rather than in October, because this will allow of his completing the subjects of the first and second professional examinations by the end of the second winter. In first professional subjects the principal change suggested is in connexion with the teaching and examination in physics. It is proposed that a practical course be instituted, to be concurrent with the lectures, both to extend over the whole of the first winter session. The examination in physics would be taken at the end of the first winter session, in conjunction with that of chemistry. Botany and zoology remain as at present, except that in zoology forty lectures are suggested instead of fifty. With regard to the second professional subjects, the principal change suggested is the earlier study of anatomy in order to enable the work in this subject to be completed by the end of the second summer, when the examination could be taken along with that of physiology, instead of in the following December, as at present. The disadvantages of the present arrangements have been so obvious that no argument is necessary to emphasize the importance of the change. The lectures in anatomy, in place of being divided into two parts, as at present, separated from one another by a year's interval, would follow on continuously, and be completed in the course of the first winter. Practical anatomy would also begin at once, so that each student would have six terms in which to complete the dissection of the body. The arrangements for physiology remain unchanged, except that in consequence of the shifting of the second part of the course of anatomy, it will be possible for each student to devote a little more time in the second part of the winter session to practical chemical physiology. No change is suggested in the work of the second summer. An alteration of importance which is suggested in the third professional subjects is the division of the lectures on materia medica into two parts, namely, one comprising materia medica proper and pharmacology, to be given on two days a week during the whole of the third year, and one comprising therapeutics, to be given on two days a week during the fourth winter session. This necessitates no change in the number of hours devoted to the subject of materia medica.

In the scheme proposed in the time-table the subjects of pathology and bacteriology obtain room for expansion. It is suggested that a general course of pathology be given during the third year on three days a week (90 lectures), and an advanced course during the fourth summer session on two days a week (20 lectures), making 110 in all. Far more time than is at present available would be free for the teaching of practical pathology, and the subjects would be spread over the whole of the third year, and would include practical bacteriology as an integral part. The first possible appearance for examination in elementary pathology and bacteriology and in materia medica and pharmacology would be at the end of the third year. The final examinations in medicine and surgery would include questions in advanced pathology and therapeutics.

Important changes are suggested in the arrangement of the teaching of the chief subjects in the final professional examinations. It is proposed to spread the systematic teaching of medicine and surgery over the three years available for clinical study. Lectures on medicine and surgery would be given every morning, including Saturday, both summer and winter. On three mornings a week the audience would be composed of students who have not yet studied the subject. These lectures would constitute a full systematic course. On the remainin days the lectures would be attended by senior students, and might be usefully devoted to special parts of the subjects. The committee points out that this arrangement has the advantage of enabling a division of labour to be introduced into the advanced course, and gives the professor, if he thinks fit, the opportunity to delegate any portion of the subject to a special lecturer. This plan has been found to work successfully in the department of obstetric medicine. Although, in deference to the practice which has hitherto prevailed in most schools of medicine, the time-table has been drawn up in such a manner as to place the commencement of the study of surgery before that of medicine, the committee is almost unanimously of opinion that it would be an improvement if the relative positions of the two subjects were reversed in the curriculum. Every surgical patient must undergo a thorough medical examination, and all the routine of such examination is system-

atically taught in connexion with medicine, and is only properly acquired by the instruction which is given in the medical wards. It would, therefore, be obviously of advantage to the student of surgery, as well as to the surgeons whom he has to assist, if he possessed this knowledge before taking up his duties in the surgical wards, whereas it cannot be alleged that a knowledge of surgery is likely to be of the same benefit to a student who is beginning the study of medical diseases.

The committee sees no reason for interfering with the present arrangements whereby all subjects except those of the final examination can be taken separately, if the student desires to do so. This arrangement has worked satisfactorily both to student and teacher; for, while it has facilitated the passing of the examinations, as shown by the diminished percentage of rejections, it has at the same time allowed a higher standard to be set in the individual subjects.

In moving that the report be adopted Mr. J. B. Clark said the special committee had made up its mind that the problem should be attacked along two distinct lines, and they therefore appointed two subcommittees, one of them to consider the medical curriculum regarded purely as a course of study, and the other to consider the relations among the various bodies in Edinburgh which were concerned with medical education. They had had the report of Professor Schäfer, who was convener of the first-mentioned committee. When the terms of the report of the subcommittee were considered by the special committee one single point of divergence emerged. In Professor Schäfer's report there was an expression of opinion that medicine should come before surgery in the medical curriculum. The special committee was not altogether of that mind, and it added the reservation that against the opinion expressed in the report regarding the relative positions of medicine and surgery in the curriculum, it may be urged that, while a knowledge of pathology such as is sufficient for the junior student of surgery can be acquired at an early part of the surgical course, a longer period of study of pathology is required for the proper appreciation of clinical work in medicine. Subject to this reservation, he moved that the council approve of the report, and direct it and the reservation to be transmitted as a representation to the University Court.

This was seconded by Dr. Norman Walker, and adopted.

Additional Medical Inspector under the Local Government Board.

Dr. Dewar, County Medical Officer of Health for Fifeshire, has been appointed by the Local Government Board for Scotland as medical inspector, in addition to Dr. Dittmar. The Board has thus instituted a second inspectorship. The duties consist in inspecting and reporting to the Board on the administration of the Public Health and allied Acts throughout Scotland.

Edinburgh Harveian Festival.

In consequence of the death of His Majesty King Edward VII the Edinburgh Harveian Festival has been postponed. It was to have taken place on Friday, May 20th.

Voluntary Aid Scheme in Scotland.

The annual meeting of the Council of the Scottish Branch of the British Red Cross Society was held in Edinburgh on May 6th. Sir George T. Beatson presided. In presenting its first annual report, the council points out that in conjunction with the Army Council a scheme for the organization of voluntary aid in Scotland in connexion with the Territorial Forces was prepared and issued in December to all concerned. Under this scheme it was left to the County Territorial Force Associations to delegate or not to the Scottish Branch of the British Red Cross Society the work of raising, equipping, and maintaining the voluntary aid detachments necessary under the scheme. The council has pleasure in recording that in all the counties and cities of Scotland the Territorial Force Associations had so delegated the work. By the co-option of members of the Territorial Force Associations as members of the County and City Red Cross Committees, marked assistance is secured in overcoming any local difficulties which may arise.

Ireland.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

National Medical Service for Ireland.

At the last meeting of Council of the Irish Medical Association a report was received from a special committee which was appointed by the Association in January last to consider the proposed changes in the Irish Poor Law Medical Service. The committee, while recommending that the opinion of all the members of the Association should be obtained by means of a *plébiscite*, has expressed itself in favour of a national service, as suggested by the Viceregal Commission, and as opposed to the county scheme of the Royal Commission, and this view has been adopted for the present by the Council. The main objection advanced against the county scheme is that, while the county councils would probably deal more generously with the officers concerned, the possibilities of promotion would be limited to each county, and that in consequence medical officers in poor counties in the West of Ireland would be deprived of the opportunity of bettering their condition. The most important details of the scheme approved by the committee are as follows:

1. A national medical service would be established for Ireland, and the salaries paid out of the Consolidated Fund.
2. Entrance would be by competitive examination, and a rota kept.
3. A board of control, with representatives from the examining bodies, would be formed to administer the scheme and to deal with all important questions of promotion and remuneration.
4. There would be adequate graded salaries, and all officers would be pensionable.
5. Whole-time officers would be provided in large towns and wherever possible.
6. Union infirmaries would be converted into district hospitals and their medical officers brought into the scheme, so as to form a united service, with arrangements for promotion, the recognition of merit and length of service being suitably provided for.
7. Whole-time county medical officers would be appointed possessing special qualifications, with analytical and bacteriological experience.
8. Only members of the National Service would be eligible for appointment as medical inspectors.

Belfast City Council: Resignation of the Chairman of the Public Health Committee.

At the meeting of this committee on May 5th, Councillor Dr. Thomson (Vice-Chairman) in the chair, a letter was read from Alderman Dr. King-Kerr, resigning the chairmanship of the committee on account of ill-health. It was resolved:

> That the resignation of Alderman James King-Kerr, M.D., J.P., of the Chairmanship of the Committee be accepted with profound regret; and that Alderman Dr. King-Kerr be assured that it is the unanimous and heartfelt wish of the members that his retirement from the arduous position of Chairman will enable him to take the rest and care necessary quickly to restore him to full health and vigour.

Dr. King-Kerr was vice-chairman of the committee from 1900 till 1904, and since then he has been chairman. No one in the council has expended more time, energy, and thought for the public. During the stormy time of 1906 he manfully stood to his guns despite the strong indictment of the public health department. His efforts since then have been unabated in carrying out both the schemes urged by the reformers and those of his own initiative or of the medical officer of health. He has retired now, on the eve of a large

scheme of reclamation of some of the worst slums in the city, and he carries with him the warm thanks of all for his manifold labour and toil in the past and the best wishes for his speedy recovery in the future.

England and Wales.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

LONDON.

THE MEDICAL TREATMENT OF LONDON SCHOOL CHILDREN.

IT was reported at the meeting of the Education Committee of the London County Council on May 11th that a difficulty had arisen with regard to the offer of medical practitioners in Norwood to treat 1,500 children at a local centre (BRITISH MEDICAL JOURNAL, March 5th). The Committee accepted the offer, but declined to contribute a sum of £175 asked for in respect of the equipment of the premises. The committee of the medical practitioners of Norwood then wrote that in the absence of an equipment grant the scheme could not be proceeded with. In the case of certain hospitals, the Council had made grants for the purchase of equipment on the understanding that any apparatus so obtained should be the property of the Council. The committee of Norwood medical practitioners was prepared to accept a grant on this condition, and the Education Committee accordingly sanctioned the necessary expenditure.

The arrangements made with the authorities of St. George's Hospital for the treatment of children suffering from ringworm having been found inadequate, the Education Committee on May 11th accepted an offer by the governing body of St. Mary's Hospital, Paddington, to deal with 200 cases for one year upon payment by the Council of £100 a year and a capitation grant of 7s. Children suffering from eye, ear, nose, and throat affections are already being treated at this hospital.

The Committee recently asked the Board of Education to allow the attendances of children at hospitals to count as attendances at school for the purposes of grant earning. The Board of Education has replied that Article 44 of the code was framed to meet cases where medical inspection could not be carried on within school premises. The Council's proposal was inadmissible, and, in view of the numerous practical difficulties the Board did not propose to amend the code in the way suggested. The Council, in its application, urged that the arrangements made for medical treatment of school children were in accord with the wishes of the Board, and to this the Board of Education replied that the Council was responsible for the particular proposals sanctioned.

The Committee decided to ask the Highways Committee to permit parents and children going to the hospitals under the Council's scheme for medical treatment to travel on the tramcars at reduced rates.

The County Council on May 10th approved the arrangements submitted for medical treatment in Wandsworth (BRITISH MEDICAL JOURNAL, April 30th, page 1079).

No controversial business was taken at the sitting, and the consideration of the report of the Asylums Committee with reference to the treatment of incipient mental disorder was postponed.

MANCHESTER AND DISTRICT.

OPTICIANS AND FEDERATION.

Aims and Objects of the New Organization.

Mr. J. C. KIDD, of Manchester, on his re-election as President of the Manchester and North of England Optical Society, at the annual meeting last week, dealt at some length with the part that society had played in bringing about the establishment of a Federated Society of British Opticians, and also submitted reasons for the formation of such an organization. He alleged that to-day opticians were threatened with extinction, principally on account of the action of members of the medical profession, and the time had come for opticians to combine, not only for the purpose of improving their status, but to meet what he described as unfair and unwarranted attacks made on members of the optical craft by doctors, or prompted by medical men. The Manchester Society, said Mr. Kidd, had started a movement which was likely to do good to the optical trade generally, and he was confident that within a fortnight from that date the Federated Society of British Opticians would be an accomplished fact. All the societies represented at the recent conference in Manchester were in favour of the scheme, and the only thing now wanted was an agreement with regard to the lines on which they should proceed. Mr. A. Herschberg, the Honorary Secretary, submitted an amended draft of the memorandum of federation to be laid before the adjourned conference of delegates from the different societies, to be held in Manchester next week. This was approved by the meeting. The draft recites that: "The Federation is an agreement between the Manchester and North of England Optical Society, the Scottish Optical Association, Glasgow Optical Society, West Riding Optical Society, Midland Optical Society, the National Association of Goldsmiths, Northern Counties Optical Society, and the Opticians' Club, London (and such other societies as may subsequently join the Federation) for the purpose of securing to the members thereof mutual co-operation and benefit." The title of the organization is to be "The Federated Society of British Opticians," each society retaining its own individuality and independence of government. The objects of the Federated Society are: (1) To strengthen and improve the position of the members of the optical craft. (2) To watch and guard the interest of all members. (3) To promote social intercourse and good fellowship amongst members of the optical trade. (4) To create, have, and efficiently work a common policy in all desirable matters of trade interest, to make heard the united voice of the members of the afore-mentioned societies (and such other societies as may subsequently join the Federation) on all occasions when benefit to the members of the trade in general will thereby be secured. It is also set out that a conference be held annually at different centres, these to be decided upon at the meeting held twelve months ahead. The purpose of the conference will be to receive reports, to discuss matters of general interest, to survey the past work of the Federation, the present opto-political position, and formulate the future policy of the Federation. It is proposed that the head quarters of the Federation shall be in Manchester, that there shall be a council of twelve, that business meetings be held quarterly, than an executive shall have power to transact any urgent business, that affiliated societies pay not less than £1 1s. per annum for every thirty members, that individual members of federated societies pay 1s. each per annum to the Federation funds, and that opticians residing in towns where no society exists shall be eligible for membership on payment of 2s. 6d. a year.

LADYWELL SANATORIUM, SALFORD.

At a meeting of the Health Committee of the Salford Corporation a report of the special subcommittee was considered, and the following recommendations were adopted with reference to the Ladywell Sanatorium, which is the borough fever hospital:

1. That the present practice of discharging from the sanatorium borough patients who have been suffering from scarlatina, regardless of desquamation, be continued, subject as hitherto to the general health and other conditions of the patients discharged being satisfactory to the medical superintendent.
2. That the present practice of treating borough patients at the sanatorium free of charge be continued.

With regard to the first resolution, it has been the custom for several years in Salford to take absolutely no account of desquamation after scarlatina as a test of infectivity, and patients are discharged from the

sanatorium while still freely desquamating. The authorities claim that there have been no bad results from this. The "return cases" in 1908 numbered 96, or 7.2 per cent. of the total number of cases. In many of these it would of course be impossible to say that the returned convalescent was actually the source of the infection; but assuming that this was really the case, there has still been a steady reduction of the number of carrier cases of scarlatinal infection. In 1903 the number of carrier cases was 13.2 per cent. of those discharged after complete desquamation, whereas the latest report for 1908 shows only about 6 per cent., though desquamation is no longer taken into account. Of course this proves very little, as elaborate precautions are now taken to see that no nasal or other discharges are present before patients are sent home. Of the 96 return cases, 22 occurred within the first week after discharge of the carrier case, 31 within two weeks, 27 within three weeks, 11 within four weeks, and 5 after four weeks had elapsed. Nothing can be argued as to the period of incubation from this, but it shows the tenacious character of the infection. Mallory and Duval attach some etiological significance to certain protozoa-like bodies found in and between the deeper cells of the epidermis. Doubts have been expressed as to whether these bodies are really protozoa and are not rather the result of the growth in the cell of a smaller germ of the same group (*Chlamydozoa*) as that which is said to be the specific organism in trachoma. If this should prove to be specific to scarlatina, it may be possible to decide the question as to the infectivity of desquamating skin, but until this is done there would certainly appear to be some risk in the Salford plan of totally neglecting desquamation, in spite of the fact that the percentage of return cases has lessened.

With regard to the second resolution, where for any reason compulsion is applied to get patients sent to the sanatorium, or where there are no satisfactory means of isolation at home, free treatment is often excusable; but the ratepayers and medical men have a right to complain that well-to-do people, who can quite easily provide efficient isolation and medical attendance at home, are being encouraged to impose on the rates, and are sending their children to the borough fever hospital simply to save themselves trouble and to avoid a private doctor's bill. There is not the slightest reason for encouraging this imposition on the already overburdened ratepayers of Salford.

The Crippled Children's Help Society.

At the annual meeting of the Manchester and Salford Crippled Children's Help Society the Lord Mayor said that in many cases parental neglect was responsible for the deformity of the children. The society was doing a good work in instructing crippled children in ways of earning at least a partial living. Tailoring and cobbling were mentioned as suitable trades to teach to the boys. It was suggested that better results might be obtained if the various agencies for child invalids were banded into one association, and the Civic League of Help would very soon take up the early treatment of tuberculosis among children. An examination of 400 cases on the society's books showed that 56 per cent. arose from some form of tuberculosis and 26 per cent. from rickets. Many of these cases were so far preventable that if early treatment were given only a very small proportion of the cases would remain. During the year 1,075 children were dealt with, of whom about 300 were new cases.

The Manchester Education Authority has a special residential home for cripples at Swinton House, where 60 children have been accommodated. This accommodation has proved to be quite insufficient, and recently an adjoining house has been taken where 60 more can be received. Manchester appears to be the only education authority which has, so far, made this special institutional provision for crippled school children.

LEEDS.

Admission of Women Students to the General Infirmary.

Among the general provisions of the Charter of the University of Leeds is one which states that, "All the degrees and courses of study of the University shall be open to women." This, of course, follows the precedent of the Victoria University, of which the Yorkshire College was one of the colleges. In so far, however, as the Faculty of Medicine is concerned, this provision has been a dead letter. To all the courses of lectures, to the dissecting room, and to the physiological and pathological laboratories women have indeed been admitted, but the doors of the great clinical school of the Infirmary have been closed to them. It has, therefore, always had to be pointed out to women making inquiry as to the facilities for study, that this fatal bar existed to a complete curriculum being obtained in Leeds. Women students have, indeed, from time to time done some work at the General Dispensary and at the Hospital for Women and Children, but the *impasse* will be appreciated by those who are aware that the Infirmary is the only general hospital in Leeds. From time to time the matter has been discussed, both at the weekly board of the Infirmary and at the meetings of the medical board or "faculty," as that body has for many years been termed. Within the last few weeks a final decision was arrived at, and in future women students will be admitted to the clinical work of the Infirmary on the same terms as men, with the one exception that they are not to be admitted to the general male surgical out-patient department.

Appointments in the Department of Clinical Pathology at the Infirmary.

After very full inquiry and the interviewing of several selected candidates, the Faculty of the Infirmary recommended to the weekly board the appointment of Mr. Mathew J. Stewart, M.B., Ch.B.Glas., as clinical pathologist, in succession to Dr. Gruner, and that of Miss Eglington, M.B., B.S.Lond., as assistant in the department. These recommendations have been given effect to by the board. Mr. Stewart comes with the highest credentials from his school of Glasgow University, while the work which Miss Eglington has done in Leeds during her house-surgency at the Hospital for Women and Children shows her ability to undertake the responsible duties of her new position.

LIVERPOOL.

The Treatment of School Children.

The Association of Honorary Officers of the Liverpool Medical Charities has for some time had under consideration the question of the treatment by hospitals of school children referred for medical treatment by the education authorities, and as a result of several meetings has arrived at the following resolutions:

1. This Association of Honorary Medical Officers of the Liverpool Medical Charities is opposed to the committees of the hospitals contracting for the treatment of school children by their medical officers.
2. That this Association of Honorary Medical Officers is of opinion that the rectification as far as is possible of the defects found in children by inspection is a public duty, the cost of which should be defrayed by the public, and that it is not honourable to endeavour to shirk the responsibility by throwing the burden of it on to any one class, namely, the medical profession.
3. That this Association of Honorary Medical Officers considers the scheme for the treatment of school children found upon inspection to be defective, put forward by the British Medical Association, to be a reasonable method, but is of opinion that the profession should accept any other scheme approved of by the community, provided that the terms of service are honourable and the remuneration adequate.

On May 4th a combined meeting of the association and of the general body of the medical profession of Liverpool, took place, Mr. G. P. Newbolt, the Chairman of the association, presiding, when the foregoing resolutions were adopted, and ordered to be sent to the education authority and to the committees of the various hospitals.

India.

[*FROM OUR SPECIAL CORRESPONDENT.*]

COMMISSION ON THE MEDICAL ARRANGEMENTS ON THE TEA GARDENS IN THE DUARS.

THE Blackwater Fever Commission of last year brought to light some deficiencies in the provision for medical treatment of coolies on the tea gardens in the Duars. The problem in this area differs much from that on Assam tea gardens because much of the labour on the latter is indentured, so that provision of diet and medical treatment during sickness is compulsory. On the other hand, in the Duars the labour is "free," the coolies coming and going as they please, and the managers have no control over the labourers, who make their own arrangements for food and housing. Medical officers are employed by the tea gardens, but they have no power to enforce treatment on sick coolies or to make them go into hospital. There are very few Government dispensaries in the area, so that if any coolie falls sick and is unable to work and earn any wages his lot may be a very hard one. As the district is intensely malarious, more so than any other part of India, it is a difficult problem to afford adequate medical relief to the thousands of coolies who flock there for work in the tea-making season, which is also the malarious one. A Commission has recently been appointed to inquire into this matter, with the civilian Commissioner of the division as its president, and aided by two other civilians and two medical officers, one with some recent experience of sanitary work in Bengal and the other a civil surgeon in Assam. They have already set to work and their recommendations will be awaited with interest.

MALARIA IN BOMBAY.

In 1906 a committee was appointed to inquire into the prevalence of fevers in Bombay, but not very much has been heard of its labours. During the last year an inquiry into the prevalence of malaria in the city was commenced by Captain McKendrick, I.M.S., and is being continued by Dr. Bentley, who recently read an interesting paper before the Bombay Medical and Physical Society. It had been shown by Captain W. G. Liston, I.M.S., in November, 1908, that the *Anopheles stephensi* was the principal carrier of malaria in the neighbourhood of the Bombay dock works, while McKendrick found a large number of wells to be breeding this mosquito. Dr. Bentley has followed up this clue and come to the conclusion that this variety is practically the sole carrier of malaria infection in Bombay town, and that it breeds in innumerable cisterns on the roofs of the houses as well as in very many wells, especially those within the courtyards of houses. About 10 per cent. of *stephensi* were found to be infected with malarial parasites, but no *rossii* harboured them, which is fortunate, as they form the great majority of *Anopheles* in Bombay. Certain tanks also breed *stephensi*, but it does not live in foul water or in that covered by water weeds. They will also live in sea water. Among their enemies are various fish and also the large larvae of *Culex concolor*, which rapidly devour those of *A. stephensi*.

These observations well illustrate the importance of local investigations by malarial experts, and encourage the hope that the recent appointment of special malarial officers to each large province, as a result of the Simla malarial conference, will soon add greatly to our knowledge of malarial carriers in India, and that Captain Liston's important discovery of the part played by *A. stephensi* in Bombay may be emulated by similar additions to our knowledge and powers of prevention in other areas of this vast peninsula, with their very varying climatic conditions.

PLAGUE.

The height of the plague season has once more been reached, and it is gratifying to find the total deaths are again much below the figures of the worst years. Bombay and Calcutta have so far got off very lightly, and the Punjab comparatively so. Behar and the neighbouring eastern portion of the United Provinces are, however, again severely affected.

Correspondence.

THE CONFERENCE ON SCHOOL CHILDREN.

SIR,—As Chairman of the Conference held at St. James's Vestry Hall, on Wednesday, May 4th, 1910, on the question of the medical treatment of school children, I beg to say that the *first* resolution as agreed at the Conference, should read as follows:

> That in the opinion of this Conference, the provisional arrangements made by the London County Council for the medical treatment of elementary school children are wholly inadequate, and involve abuses of charitable medical institutions and unfairness to the medical profession.

An amendment deleting the words "for this national purpose," and adding at the end "and unfairness to the medical profession," proposed by Dr. R. M. Beaton, and seconded by Dr. Beckett-Overy, was accepted by the proposer and seconder of the original resolution, and this incident is referred to in your report, although by some oversight it has not been embodied in the resolution as reported in the SUPPLEMENT of the BRITISH MEDICAL JOURNAL of May 7th, 1910.

I desire also to call attention to the omission, in your report of the Conference, of Sir Victor Horsley's strong dissent from the suggestion of Dr. Sidney Phillips that the meeting was not a conference, and I desire to add that I agree entirely with that dissent. The instruction to the Honorary Secretary was to issue invitations to all members of the staffs of the hospitals concerned to confer with the Metropolitan Counties Branch, and I have every reason to believe that this was done.—I am, etc.,

London, N.W., May 9th. J. FORD ANDERSON.

*** We regret that in the report of the conference published in the SUPPLEMENT of May 7th, p. 217, Dr. Ford Anderson was by inadvertence described as Chairman, instead of President, of the Metropolitan Counties Branch.

MEDICAL TREATMENT OF SCHOOL CHILDREN.

SIR,—I am interested to see that since the International Congress of 1907 the profession has become convinced of the importance of the subject of the treatment of school children found defective, and, with the view of learning what was being done in the matter, I attended an important conference. At that meeting of the staffs of hospitals with the Metropolitan Counties Branch on May 4th the Chairman, Dr. Ford Anderson, very wisely drew attention in his opening remarks to the fact, that to render the medical treatment of school children compulsory, was a new departure, and it was therefore most important that it should be started on proper lines. Any error which is made now will become more and more difficult to rectify as time goes on. The meeting discussed only the treatment of school children in London, but the example set by the Metropolitan Branch is likely to be followed by other Branches, and it is therefore advisable that any scheme adopted by this Branch should be applicable to every district in the country, rural, where no hospital may exist, as well as urban and metropolitan. If this be so, then unquestionably school children must be either treated at their own homes or in school clinics established for the purpose. The natural thing, of course, is that each child should be treated by the medical man who usually attends the family. One objection which may be raised is that the treatment of eyes, ears, throat, and nose requires special training and skill which ordinary practitioners may not possess. But very many practitioners are quite competent to treat all these specialities, and we must remember that the lines are now being laid down on which treatment will run for many years to come. Demand brings supply, and if these specialities are required in ordinary practice the younger generation will be thoroughly trained in them. Even now, if some of the older men in a district should not feel able to undertake such treatment, they can meet together and

select some one of their number who would do so. A clinic might be established near the school to which each doctor in a district might refer such cases as he felt either unable or unwilling to treat himself. But it seems to me that the proper course is that, when parents are warned by the school authorities that their child requires treatment, they should apply first to their own doctor, who, if he thinks it right, could send them on to the clinic. Moreover, the medical men who conduct the clinic should be chosen by the practitioners in the district, and their choice should be ratified by the Education Authority, but it would be manifestly unfair that some one should be forced upon them without their consent. In cases of ringworm, where not only *x* rays but isolation from healthy children are advisable, it might be advantageous to have special clinics for the disease, to serve the needs of a county, and to these the district clinics might send the cases requiring such treatment. This and many other questions are, however, matters of detail. The main points are:

1. That school children requiring medical treatment should be taken for it, in the first instance, to the practitioner attending the family; and
2. That school clinics should be established in the neighbourhood of schools by the combined action of the practitioners in the district where such cases as they were either unwilling or unable to treat themselves might be treated by some one whom they had themselves selected, and whose appointment had been confirmed by the Education Authority.

I am, etc,

LAUDER BRUNTON,
President of the Second International Congress for School Hygiene.

London, W., May 9th.

PUBLIC MEDICAL SERVICE.

SIR,—I have no desire to enter into any controversy on this subject, but perhaps you will allow me briefly to mention some objections to the public health service suggested by the Association.

1. No provision is made, nor apparently even anticipated, for contributions from the employer and the State. Time was when employers called in medical men and paid for attendance, especially for those injured by possibly defective machinery. In larger centres employers now send them to hospitals where they are attended free of charge, and the amount paid in compensation is less, as not only treatment but free board and lodging is given at the expense of those who piously believe that in subscribing to hospitals they are helping the poor. The fact is that there is a large body of people in this country who are not paupers, but cannot afford to pay an adequate sum for medical attendance. In other countries the employer does his part, and no complaint is made, as he knows that by this means his poor-rate is greatly reduced. Nor does it seem reasonable that a State which can afford to expend large sums on education should not be called upon to pay something for medical attendance on the sick poor. Contributions from employers and the State can only be had when medical men and others do something towards the passing of a State insurance bill.

2. In the Association's proposals the amount to be paid for medical attendance is not graduated according to the wages of the recipient. A patient whose income is £200 a year is not expected to pay as much as one earning £2 000 a year, and why should a labourer earning less than £1 a week pay as much as a skilled artisan? One of your correspondents has pointed out that a considerable part of his income is derived from families who earn less than £1 a week, but has he duly considered a fact, which I have verified by going over family budgets, that the labourer in the country with 16s. a week is as well off as he is when earning 30s. a week in a large town, and that there is a vast number in large towns who are earning less than that amount?

3. The Association places its imprimatur on contract practice. It must surely be evident that if that proposal is not abandoned the scheme must fall through, as on these lines anything approaching unanimity is impossible. Alternative proposals on the lines of the National Deposit Society have been brought forward by Dr. Fothergill, but they seem to me to involve so much detail that they are impracticable.

Personally, I have long regarded a system of compulsory insurance, not precisely as we find it on the Continent, but adapted to our national needs, as the only satisfactory solution of this question. Objection has been made that if all earning less than, say, £2 a week were compelled to insure there would be a limitation of private practice. To many of us living in large towns and in the neighbourhood of hospitals that is a matter of no importance, as with the exception of those who are members of clubs or dispensaries those earning less than £2 a week now pay practically nothing, and the trend in small towns and country districts seems to be in the same direction. Another objection I have often heard from medical men is that they do not wish to be servants of the State. But surely every one who has inquired into the matter must know that this is not a necessary element in compulsory insurance. Deduction is made from wages to which a contribution is added from employers and the State. In return the worker calls in the medical man of his choice. He may have him as his family doctor for a lifetime, or he may change at the end of an illness. Where any cohesion exists among medical men there is practically as little interference between the medical man and his patient as exists in private practice.—I am, etc.,

Greenwich, May 9th. J. H. KEAY.

THE REFORM OF MEDICAL CHARITIES.

SIR,—When I wrote a pamphlet twenty years ago on the Abuse of Medical Charities by the Public and the Profession, I thought, like the writer of the leading article in the BRITISH MEDICAL JOURNAL of Saturday on Mr. Booth and Poor Law Reform, that reform of medical charities was quite possible of accomplishment within a few years. I have now changed my mind, and have formed the opinion that reform is hopeless so long as they are supported on the present basis. The managers of voluntary medical institutions have taken up an attitude of *non possumus*. A few years ago, in the annual report of the Western Infirmary of Glasgow, the board of management stated in effect that they did not see their way to check the alleged abuse of the hospital by patients able to pay professional fees, because by attempting to exclude such people they might alienate some measure of public support. The board thought it was more advisable to admit an occasional undeserving case than to run any such risk. Hospital managers feel that charity is so very sensitive a source of income that they must take every care not to give any cause for estrangement. Neither in the outdoor nor indoor departments are the boards of voluntary hospitals willing to abate the abuse of which the profession have been complaining so long and so bitterly. They even quite boastfully present their annual reports showing increasing numbers year by year. At the same time they show the usual large annual deficit in the income, and never cease to make their appeal *ad misericordiam*.

So long as charity is the sole source of the support of our medical institutions they will remain as they are—incapable of reform. The old eleemosynary aspect of hospitals is antagonistic to the spirit of reform. They are not now to be compared with the lazar houses of ancient times, and we need not cry out, "Help, for the love of God." We live in a practical age of science and industry, and a medical service is absolutely necessary in the complete equipment of a civilized community. The treatment of sickness should be provided for by a source of support which is perfectly reliable and equal to all requirements. I mean, of course, a fund obtained by public assessment. As is stated in the leading article, the very essence of charity is its freedom to do as it likes. Neither the public nor the profession have any representative control over the action of the management of medical charities.

The public have so long been accustomed to obtain the very best medical assistance at charities that it will be wellnigh impossible to arrest the trend to go thither rather than to private practitioners. The most hopeless aspect of the matter is that people, especially the industrial classes, hold that by their contributions to the hospitals from their wages they are quite entitled to treatment and nursing when they require it. They have abolished the idea of charity long ago. Returns show that the working classes are now subscribing much more

to hospitals than formerly. It could be shown, I think that rate support would, over all classes of the people, not take so much out of our pockets as at present for the upkeep of the existing institutions. They would be managed by the municipal councils elected by the ratepayers, representative, of course, both of the profession and the public.

If we, as practitioners, expect the lay management of hospitals to have any care for our professional interests we are deluding ourselves. At present they are getting the services of the staffs of voluntary medical institutions for next to nothing, unfortunately. They are mean enough to accept those services on those terms and we are silly enough to give them. In a municipal or State service we would be remunerated for our work on strictly commercial terms.

The so-called abuse of our medical charities extends beyond the sphere of the general public. The Education Act, 1907, orders the London County Council and other authorities to inspect school children, and empowers them to treat those children found defective. The London authority, ignoring all thought of hospital abuse, has commandeered the services of several medical charities by offering them small subsidies.

Twenty years ago I fondly expected the medical officers of our hospitals would take a stand for reform. So far as I know, not one of them has sacrificed his appointment in the interest of reform of medical charities. Has any one declined to treat patients, indoor and outdoor, because in his opinion they were able to pay him fees, and in defiance of the orders of the board of directors. Of course, I except cases quietly transferred to the physician's own house and the smaller one-man concerns which exist largely for that purpose.

The charity support of hospitals creates the circumstances in which medical men give their services for a mere honorarium or for nothing at all. These practitioners make it appear that they are by their gratuitous services contributing to the charitable support. We know better than that; the appointments are invaluable to most of them, and many of them would be ready to pay premiums for the posts. It would have been a self-denying ordinance for such gentlemen to have taken any prominent action in relation to this aspect of the reform of medical charities. Did the British Medical Association or any medical association ever take action in the way of compelling hospital staffs to accept adequate remuneration for their services? It would be absurd to expect hospital physicians, surgeons, and specialists to stop the abuse of which the profession complains, because the greater the crowds and the better the class of patients, the more are they appreciated and advertised. While they receive no remuneration for the hospital treatment of these people, and may be preventing their fellow-practitioners outside getting payment, the hospital doctors have in the clinical material, outdoor and indoor, the means of keeping themselves before the public, and at the same time keeping up their fees at the high-water mark of consultants and specialists.

The solution of the problem of the medical treatment of the poor under the Poor Law Act is mere child's play compared with the much greater question of a medical service for people above the verge of pauperism. The British Medical Association propose provident institutions. Who will join them so long as the doors of medical charities are open? Force is suggested in the leading article if argument fails with the lay boards of medical charities. The public have also to be reckoned with. They have been getting medical assistance from our large institutions, and believe they are paying for it. By transferring the incidence of that payment to the rates there is nothing to hinder them getting the benefits of a continuance of a public medical service.

Allow me to conclude this rather long letter by stating that I think the necessary treatment of defective school children is one of the several factors now operating to bring about a State medical service in this country.—I am, etc.,

Glasgow, W., May 9th. JAMES ERSKINE.

HOSPITAL CRITICISM AND HOSPITAL LETTERS.

SIR,—In an annotation headed "Hospital Letters" in your issue of April 30th, the writer appears to have allowed his feelings of prejudice against an individual to obscure his outlook upon hospital affairs and modern hospital efficiency. The annotation is merely a veiled attack upon the author of the King's Hospital Fund, who for forty-two years has devoted much of his time to the cause and maintenance of the voluntary hospital system. Seeing that the writer, with the exception of a few small points, is wholly occupied with his attack upon the man referred to and his methods and mode of work for the hospitals, I have thought it worth while to show that the writer, whatever may be thought of his main theme, has done himself less than justice if he claims to speak of hospitals and their management with knowledge.

The whole pother appears to have arisen because the author of the King's Fund recognizes the immense advantages which have accrued to the Metropolitan Hospitals by the work and inspections of this Fund. In consequence he has endeavoured by a personal inspection of the principal hospitals and Poor Law infirmaries in the United Kingdom to enable the managers of these institutions, as the result of these inspections embodied in frankly outspoken reports, to know exactly where they stand, where improvements can be introduced, and so to attain the same high standard of hospital efficiency. It was, perhaps, a bold step to take for one man to make these inspections, to embody their results in critical reports, and to publish them, as they will be published, in a volume which will record the condition of these voluntary and other hospitals in 1910. These inspections have, at any rate, been welcomed by some of the best and ablest minds in the hospital world, and they have been attended already by material results of real importance to the institutions concerned. I believe the Blue Book containing them, which will record the actual changes resulting, with plans of many institutions, cannot fail to prove useful as supplementing the reports of Holmes and Bristow made in 1864-7. No one is more conscious than I am of the imperfections and faults of the man who has ventured to make these inspections, in the hope, which has been realized, that they would prove welcome and helpful to many zealous workers connected with the voluntary hospitals throughout the United Kingdom. But the majority of hospital managers, at any rate, do not take the somewhat bilious view which your contributor has expressed, and he appears to be out of sympathy with the spirit which animates the overwhelming majority of hospital workers, who believe, as I believe, in the doctrine of personal service in the days of health in the cause of the sick.

The only point which justifies the heading "hospital letters" to the paragraph referred to, is a reference to a suggestion made in the report on the South Devon and East Cornwall Hospital, Plymouth, which was published so long ago as November last, in which a revision of the scale of governor's privileges, as represented by tickets at this hospital, is recommended. Your correspondent has failed to grasp the bearing of the recommendations made, which is in the main the exact opposite of what he states it to be. They were not that subscribers should be offered an exact return for sums they contribute, but that it was neither business nor philanthropy to give a cash subscriber of two guineas at Plymouth seven pounds of actual hospital benefits. In the reports referred to the writer has frequently expressed a strong opinion in favour of the abolition of tickets, and has pointed out that he has never found the residents in an English county who have not supported the hospital committees which have revised the scale of privileges as suggested, and placed them upon a more businesslike and fairer basis. It was further stated that each voluntary hospital which trains nurses should maintain a private nursing staff, so that the hospital authorities would be in a position to supply a trained nurse whose character and efficiency they can guarantee at the request of any subscriber; that the South Devon Hospital at Plymouth has upwards of £100,000 invested funds; that five years' expenditure—that is, a sum of £50,000—invested is an ample reserve fund for the security of this voluntary hospital, which, to maintain the maximum of efficiency, should be largely dependent upon the goodwill and contributions of the people of each generation it may serve. In these circumstances the Governors would be justified in following the example of some of the ablest-administered voluntary

hospitals in the kingdom by expending some £20,000 of the invested funds in reconstructions and improvements, so as to bring the South Devon and East Cornwall Hospital up to the standard of average efficiency which the King's Fund has brought about largely in London. If my information is correct, this view is shared by the progressive members of the committee of this hospital, and I am hopeful that my suggestions will yet be followed, for its medical staff includes some very able members of the medical profession.

It is remarkable that your correspondent should not call in question the suggestions contained in the report, and I may point out that that report and correspondence stands, and will stand, as faithfully representing the actual condition of affairs at the South Devon Hospital at the date when the inspection was made. *Truth*, in welcoming the independent inspections I have been making, urged me to state frankly the condition of each hospital as I have found it to be. This I have done everywhere, and I welcome the present opportunity to express my indebtedness to the authorities of the hospitals, who have readily afforded me every possible facility to carry out these inspections without fear or favour.—I am, etc.,

Madrid, May 7th. HENRY C. BURDETT.

⁂ We trust that the publication of this communication will not be taken as fresh evidence of prejudice or as another veiled attack on "the author of the King's Fund." We are glad of the assurance that Sir Henry Burdett disapproves the issue of hospital letters. The fact that both locally and by ourselves he was interpreted to be an emphatic advocate of an extension of that system was the sole reason for alluding to the voluminous correspondence in question. The latter was made amusing by the difficulty experienced by Sir Henry Burdett's opponents in defending their institution without incurring a charge of *lèse majesté*. In respect of purely local examination, we cannot judge as to the soundness of his advice to this or other institutions, but we are sure that the probability of its acceptance is lessened by the dogmatic tone in which it is delivered. For the rest, personal service in one form or another is the note of the day, and this, we gladly admit, Sir Henry Burdett is ever ready to furnish.

GASTROPTOSIS.

SIR,—Two very suggestive papers read at the Medical Society of London by Mr. Eve and Dr. Robert Hutchison, and published in the current number of the JOURNAL, appear to demand some comment, for it is gradually being recognized that mere displacement of the stomach, without other gastric disease, is an exceeding common condition, though such stomach displacement is usually associated with ptosis of some of the other viscera of the abdomen as well as those of the thoracic, cervical, and buccal regions.

That the complications and sequelae associated with displacement of the stomach may sometimes require, and be relieved by, gastropexy (especially in hospital patients of the working class) appears certain from Mr. Eve's results. It can be but seldom, however, that fixation of the *stomach only* can dispel the symptom-complex arising from the associated ptoses.

I thoroughly agree with Dr. Hutchison's views as to the duplex relationship between neurasthenia and gastroptosis, but I most emphatically join issue with him on the point that the replacement of the stomach is "a matter of secondary importance." My view is that the restoration to their normal position not only of the stomach but of all the viscera and, what is more, the vertebral column, thoracic cage, and balance of the head on the spine, are of *primary* importance—that is, if the practitioner desires to *cure* the simple gastroptosis, and the causal or consequential neurasthenia, as well as to *prevent* the supervention of the grave complications and sequelae which Mr. Eve and Dr. Hutchison have described in their papers.

It has been well said "treatment is causation reversed," and, without doubt, in gastroptosis causation is the key of the situation. What is the *cause* of ptosis of the viscera?

Professor Arthur Keith, in his classical Hunterian Lectures of 1903, has expressed the view that "enteroptosis is the result of a vitiated method of respiration, and should be assigned really to the respiratory diseases." My own opinion, nevertheless, is that enteroptosis is not *primarily respiratory*; it is *primarily postural*. The subject of enteroptosis has either never acquired the "correct erect posture" or has lost it. I have elsewhere[1] written of the "correct posture" as the "normal orthograde" or "perfect erect" posture, and it is essential to the comprehension of my present argument to repeat myself as briefly as possible.

Posture has a pre-eminent significance for man, who stands and progresses on one end of his longitudinal axis with the centre of gravity of his body poised high over a small base of support. Any movement of his body as a whole, or relative displacement of internal parts, tends to shift the centre of gravity outside the base of support, and the postural mechanism has to be incessantly at work to maintain the "perfect erect" or "normal orthograde" posture. It is clearly to man's advantage to effect this with the least expenditure of power. This he should do by arranging that the weight of the body is borne to the maximum degree by the appropriate mechanical structures of the body—the bony and cartilaginous skeleton and the ligaments. Under these conditions a minimum expenditure of power is needed to maintain that posture or from it to start a new activity, and there is no excessive local muscular contraction or relaxation, leading to unnatural displacement of parts—visceral or skeletal. I therefore define the normal orthograde posture as that position in which the centre of gravity of the head is vertically over the centre of the base of support, and in which these two points are distanced as much as possible from each other, the line of gravity joining these points bisecting the median transverse occipito-condyloid and intercotyloid axes.

This is the ideal posture at which we should aim for every child—the one we should endeavour to get stereotyped by growth in form and structure—and it is the posture to which such child should automatically return, after action or relaxation. A child so trained will have a straight back, raised and expanded thorax, well distanced from the pelvis, and a flat abdomen. It does not follow that the postures permitted by some physical culturists—stiff, rigid, faulty copies of the above—really arrange the weight of the body in accordance with my definition. It is notoriously not so. Further, the "normal orthograde posture" is the one we should teach, train, and urge upon our patients suffering from ptosis. Experience has shown further that the same posture is the one in which the respiratory mechanism has "optimum efficiency," and from which the correction of vicious respiratory habits is best commenced.

Professor Arthur Keith has said enteroptosis is due to the fact that in some individuals, "through circumstances over which they might or might not have any control, the balance got upset between the expiratory and inspiratory groups of muscles, and it was the muscles of expiration that yielded usually." But why? I would reply that unless the spine and thorax were habitually collapsed the expiratory muscles would *not* become enfeebled. When the viscera were thus allowed to sag down, the expiratory muscles were stretched, first by the weight of the viscera, and secondly by the inspiratory descent of the diaphragm. Professor Keith also states that the effect which the diaphragm would have on the abdominal viscera on inspiration depended largely "on the opposition offered by the muscles of the abdominal wall to the descent of the viscera." But that view must be strenuously opposed. It is not probable, for it is not compatible with any conception of economy of working in the human engine, and is in direct opposition to Professor Sherrington's well-established generalization as to the normal reflex inhibition of antagonists in the muscular work of the body. To assume that, in ordinary breathing, the abdominal muscles are pulling hard at the same time that the diaphragm descends is not conceivable—or at least only for some temporary abdominal expulsive effort. My own view is that the abdominal walls are made taut by the inspiratory straightening of the spine, raising of the chest, and expansion of the thoracic base. The belly walls act *chiefly* as ligaments during the in-breath. In my opinion there should be, in normal breathing, no descent

[1] A New Cardinal Principle in the Treatment of Disease and its Application in Disorders of the Nose, Throat, Voice, and Speech, *Med. Press and Circular*, February 9th, 1910.

of the diaphragm at all, and this statement is made in spite of the fact that, in the ordinary, average modern human, such descent usually takes place. The correct—that is, most efficient—mechanical action of the diaphragm is the centrifugal or expansile one, as was apparently suggested by Galen and worked out thoroughly by Duchenne.[2] If there is a straight spine, raised and expanded thorax, and a centrifugal action of the diaphragm, all the viscera are held in position; and that principle I apply to my cases that, among other troubles, have ptosis of the viscera. Such measures might be included under the term "physical education," but the special selection of procedures which I have selected and adopted I have named "psychico-postural-respiratory training."[3] Such training of the patient requires considerable perseverance and patience, but it is successful, of wide application, and permanent.

Professor Keith thinks[4]—be the type of breathing abdominal or thoracic—there may still be gastroptosis, for, "although the visceral swing is greatest in the abdominal type, the pressure to which the abdominal viscera are subjected is greatest in the thoracic type." But in my opinion that is not so; for if the spine be fully extended and the thorax raised—positions of optimum efficiency—the diaphragm necessarily acts centrifugally. There is *no* increase of intra-abdominal pressure on the in-breath. The spine and thorax, in fact, act as a powerful elastic spring crane, keeping all the viscera retained in proper position, while the base of the thorax is being expanded by the diaphragm. Thoracic suction comes into play, and aspirates the blood from the portal area. When expiration occurs the abdominal muscles contract, acting as a force-pump. *Now*, increased intra-abdominal pressure is produced, and further emptying of the abdominal pool by squeezing. Thus, in thoracic respiration there is no tendency to ptosis, or for the viscera to bulge forwards and stretch the abdominal walls by their weight, or for the active diaphragm to drive the viscera down. Attention to these matters of posture and breathing will cure permanently uncomplicated ptosis of the viscera. If the diaphragm works centrifugally, it has not to expend power on dragging down the thoracic viscera at each in-breath, and exerting traction on those strong fasciae which connect the pericardium and roots of the lungs with the inlet of the thorax and the cervical spine, and it has not to waste power in translating the abdominal viscera. One of the great factors in curing neurasthenia is to so use the human machine as to get from it "optimum efficiency," and not to waste power on unnecessary internal work. Gastroptosis is, with the rare exception of a "dislocated" stomach, only part of a general ptosis of the viscera. It is especially common in those who suffer from affections of the upper air passages.

In view of the concentration of the medical thought of to-day on the possible relations between the inflammatory, ulcerative, and innocent lesions of the stomach and other viscera, on the one hand, and malignant degeneration in the same organs, on the other hand, the *possibility* of malposition and displacement of the viscera being intimately associated with the two groups of phenomena must be a matter of interest.

Meanwhile, I would urge, in conclusion, that the most efficient treatment for uncomplicated ptosis of the viscera is the physical education of the spine, thorax, abdominal wall, and diaphragm to regain and maintain optimum efficiency of the postural and respiratory mechanisms by some such measures as I have elsewhere described, and named psychico-postural-respiratory training.—I am, etc.,

ROBT. HY. SCANES-SPICER, B.Sc., M.D.Lond.

London, W., May 9th.

TREATMENT OF WOUNDS IN ROAD OR GARDEN OR FIELD ACCIDENTS.

SIR,—During the last week the army and the profession have lost a valuable member by death from tetanus. It may not be inopportune if I refer to the treatment I adopt in every case of accident where a wound has come into recent contact with dirt from a road, garden, or field. It receives at once an injection of tetanus antitoxin. Lately a little boy was admitted under my care into King's College Hospital. A quarter of an hour previously he had met with a street accident; the wound, on the thigh, contained dirt from the road. The wound was purified and tetanus antitoxin was administered. About fourteen days after, Dr. d'Este Emery examined the discharge from the wound and found what appeared to be tetanus bacilli in large numbers. Happily the little boy was protected, and he recovered completely without a sign of tetanus. Perhaps, Sir, many will agree with me that this safe prophylactic measure ought to be more generally employed.—I am, etc.,

London, May 10th. G. LENTHAL CHEATLE.

CANCER OF THE RECTUM.

SIR,—The correspondence which has appeared in the columns of the BRITISH MEDICAL JOURNAL of May 7th and the preceding two weeks on the surgical treatment of cancer of the rectum is full of interest, and every surgeon will welcome an exposition of the personal experience of those who are especially interested in this particular branch of surgery.

At the same time I cannot help thinking that the discussion is ill-timed and somewhat premature, because, up to the present, sufficient time has not elapsed to enable those who have adopted the abdomino-perineal route for extirpation of the cancerous rectum to collect a sufficient number of cases which have survived the operation for a period of at least three years, and thus to establish the merits of that procedure in reference to the problem of recurrence and to draw a comparison with perineal extirpation in that respect, which, after all, is the main point at issue.

In the *Lancet* of December 12th, 1908, I published an article entitled, A Method of Performing Abdomino-perineal Excision for Cancer of the Rectum and of the Terminal Portion of the Pelvic Colon, and mentioned therein that I had performed that operation twelve times. I also stated that I had abandoned perineal operations because I had found that those methods were inadequate for the purpose of preventing recurrence. At the same time I pointed out that, so far as my experience was concerned, recurrence after perineal operations occurred in situations above the field of operation, in a region which I termed the "upward zone of spread."

The method of performing the abdomino-perineal operation which I then described was devised by me for the purpose of including this zone, in the hope that the percentage of recurrences might, at all events, be diminished.

This operation, which is in fact the final result of the evolution of the operation for cancer of the rectum in my own practice, I have now performed twenty-four times, and the first three patients upon whom it was done have now passed the three-year limit.

My observations upon the recurrence of cancer following perineal operations in my own practice, and my reasons for advocating my method of performing the abdomino-perineal operation, are embodied in a paper, the title of which I submitted a few weeks ago to Mr. Douglas Drew (as one of the secretaries of the Surgical Section), to be read at the forthcoming meeting of the British Medical Association in July next, until which time I shall defer expressing the opinion I have formed on the relative merits of the operation.—I am, etc.,

London, W., May 9th. W. ERNEST MILES.

DUCTLESS GLANDS.

SIR,—The most interesting paper of Mr. Mayo Robson on "The Surgical Treatment of Certain Cases of Glycosuria" clearly demonstrates the important part played by the islets of Langerhans in the production of glycosuria; and there are certain developmental and physiological points which these islets suggest of great interest and of great importance in the question of internal secretions. It seems to me that in the past we have been apt to treat ductless glands as functionless and uninteresting organs and the useless reminders of our ancient ancestry. The islets of Langerhans represent developmentally the more primitive part of the pancreas and it is interesting to note that special cells of the

[2] *Physiologie des mouvements*, 1868.
[3] *Proc. Roy. Soc. Med.*, vol. iii, No. 6, Section of Laryngology, p. 119, Case of Intranasal Disease and Stammering.
[4] Loc. cit.

sympathetic ganglia are found in the islets and in the carotid coccygeal glands of the posterior lobe of the pituitary body and the medullary substance of the adrenal bodies. Therefore all the most active parts of these ductless glands are intimately connected with the sympathetic portion of the nervous system.

There is also an interesting point with regard to the thyroid gland. If one lobe be removed and the nervous supply of the remaining lobe severed, the result is the same as that produced by removing both lobes.

There is also, as one might expect, a very close relationship between the action of the internal secretions of these glands, which have an intimate developmental relationship to the sympathetic nervous system.

The posterior lobe of the pituitary body secretion contains two substances, one producing a rise and the other a fall in blood pressure. Gigantism and acromegaly are also associated with disease of the pituitary body, and therefore there must be a secretion which plays an important part in regulating the normal growth of bone. Probably it is derived from the anterior lobe, which contains colloid material very like that found in the thyroid, and it must be remembered that the anterior lobe is developed from the buccal cavity.

Adrenalin, the internal secretion of the medullary portion of the adrenalin bodies, produces a rise in blood pressure, partly owing to its tonic action upon the heart and partly to stimulation of the vaso-constrictor fibres in the walls of the peripheral vessels. It also inhibits the movements of the stomach and intestines (producing therefore the same results as stimulation of the sympathetic).

Again, if we take the action of the thyroid secretion upon the circulation, intravenous injection of colloid material produces a temporary but marked fall in blood pressure; but if, after removal of the thyroid, when the blood pressure falls very low, we inject the colloid material, the blood pressure rises.

About the functions of the coccygeal and carotid glands we know nothing. Whether the coccygeal gland has any developmental relationship with the uropygeal gland of birds, which is merely a lubricating gland, I know not. The thymus gland secretes a substance which lowers blood pressure.

The close developmental relationship existing between these ductless glands is very interesting; the action of their secretions upon the circulatory organs is also very suggestive, as is also the nutritional changes of the body associated with pathological conditions affecting them.—I am, etc.,

Bedford, April 24th. S. J. Ross.

THE SURGICAL TREATMENT OF GLYCOSURIA.

Sir,—Will you allow me to comment briefly on one point in Mr. Mayo Robson's very instructive paper on the above subject which appeared in your issue of April 23rd? Mr. Robson says: "It is now possible to diagnose the catarrhal inflammatory diseases of the pancreas even in their earliest stages by a careful examination of the urine and faeces and by a consideration of the clinical history and symptoms." And he goes on to refer to "the results that may follow the neglect of a warning given by the pancreatic reaction."

A large experience of this new urinary test in the past three years has convinced me that we have in this test a new and very useful diagnostic measure; at the same time, too little attention has, I think, been directed to the limitations of its usefulness. This is to some extent restricted by the laborious nature of the test and by the undoubted difficulties that present themselves, in not a few cases even to the expert, in regard to the character of the crystals and their relationship to glucosazone. In Mr. Robson's paper frequent reference is made to the report of Dr. Cammidge as to the urine containing sugar and also giving the pancreatic reaction. There is here, to my mind, a difficulty. After an experience of considerably over a thousand analyses, the end reaction in nearly every instance being determined by myself, the series including very many cases of glycosuria, in which the urine was examined before and after complete fermentation, I have been led to the conclusion that *the pancreatic reaction has no special value in cases of glycosuria.* In every case of glycosuria in my experience the pancreatic reaction is positive—that is to say, crystals are present which are not distinguishable from those obtained from sugar-free urines, which give a marked positive reaction. This experience is, I think, at variance with that of Dr. Cammidge, and it is desirable that the correct view should be determined. I may say that the experts engaged in urinary analysis in the Royal College of Physicians laboratory in Edinburgh have arrived at the same conclusion as I have.

In view of Mr. Mayo Robson's recent pronouncement on the subject, it appears to me advisable to sound a note, not of protest, but of caution, lest, as a result of operative treatment carried out by less experienced hands, the surgical treatment of certain cases of glycosuria should fall into a disrepute which may be unmerited. My experience has led me to adopt the following views as a guide in practice:

1. There is a group of cases of organic disease of the pancreas in which a marked pancreatic reaction in the urine is a prominent feature, in which the reaction in the urine does not readily disappear under the influence of diet.

2. There is a large group of cases of disease, variously regarded as indigestion, gout, neurasthenia, and the like, in which a marked pancreatic reaction in the urine is present, in which the reaction in the urine readily disappears, with corresponding improvement in the patient's general condition, coincidently with a suitable restriction in saccharine and starchy foods.

3. There is a third group of cases in which the urine contains sugar, and also gives the pancreatic reaction; for reasons above stated the pancreatic reaction has no special value in these cases.

4. Great care is called for on the part of the physician in recommending cases of glycosuria for operative treatment on the strength largely of information gained by urinary analysis.—I am, etc.,

Edinburgh, April 30th. Chalmers Watson.

THE INFECTIVITY OF PNEUMONIA.

Sir,—There is a point in Sir Thomas Oliver's instructive lecture on some of the less common aspects of pneumonia to which I should like to refer.

My experience as workhouse medical officer has left no doubt in my mind as to the infectivity of pneumonia. In a Poor Law infirmary where a large percentage of the patients are aged, and suffering from chronic disease, such as rheumatoid arthritis, the various forms of paralysis, or perhaps ulcers of the legs, I have observed on several occasions that as soon as a case of lobar pneumonia is admitted from outside three or four of these predisposed old people will be attacked by the disease. The period of incubation is short. I should put it at three or four days. Generally on the third day after the new admission some old woman loses her appetite, her cheeks get flushed, her respirations hurried; or an old man gets quite delirious and violent. An examination of the chest reveals typical lobar pneumonia. These cases are not as fatal "as the worst type of cholera." As a rule they run a mild course. I regard them just as I do a case of erysipelas coming into the wards—sharp and troublesome for the time, but almost invariably ending well.

It would be of great interest to me to know whether other workhouse medical officers have had similar experience.—I am, etc.,

Exeter, May 3rd. J. A. W. Pereira.

THE VALUE OF STRYCHNINE IN SHOCK.

Sir,—In the course of a clinical lecture entitled, How to operate in appendicitis, and reported in the British Medical Journal of March 12th, Mr. R. P. Rowlands is reported to have said: "In the treatment of the shock strychnine is avoided, because clinical experience confirms the statement of Crile that strychnine is the surest method of producing shock." From this statement I infer that strychnine is to be avoided, in the opinion of Mr. Rowlands, not only after abdominal operations, but in all cases of shock arising from any cause whatever. Now, strychnine is used probably more frequently than any other drug, and most practitioners, I should think, carry some about with them, and use it freely and with confidence in respiratory and cardiac failure *and shock* produced by operative interference or otherwise.

In 1898 Messrs. Rose and Carless advised strychnine hypodermically for shock. In 1910 Mr. Rowlands and others say it is about the worst thing you can give. Obviously there is an error of observation somewhere. Meanwhile, the profession is reduced to a state of doubt on a very important point indeed—namely, the value of strychnine and other stimulants in cases of shock. Could not a Commission be appointed to attempt to settle a question as important as the rights and wrongs of vivisection or the action of chloroform? Dogmatism, immature and contradictory pronouncements, hamper us at every turn. It is so much easier to echo the cry of some enthusiastic injector of dog, guinea-pig, or frog, than to carefully, patiently observe and interpret clinical phenomena. Nowadays, when a lecture is elaborated in a few hours and a would-be epoch-marking book after a few weeks' sojourn in a reference library, let us remember that Copernicus, Newton, and Darwin were silent for more than twenty years, and that one of them was on his death-bed before his work was published.—I am, etc.,

Bedford, Cape Colony, April 5th. H. F. BELL WALKER.

THE COLLEGE OF SURGEONS' DISSECTIONS AND SURGERY.

SIR,—As a good knowledge of anatomy is essential to good surgery, no stone should be left unturned to place at the disposal of the profession first-rate anatomical preparations. The College of Surgeons possesses what is perhaps the finest collection of dissections in the world, and the benefits to surgery would be almost incalculable if good stereoscopic photographs of them were obtainable. They would be invaluable in anatomical museums, and are a necessity to enterprising practitioners. Moreover, they are known to and held in affectionate esteem by all graduates of the college, and would therefore be almost certain to sell well. It certainly does seem a pity that no one should benefit from them save those who live in London, and of these only the few who have the time to visit the museum.—I am, etc.,

London, S.W., May 3rd. CHAS. WRAY, F.R.C.S.Eng.

SCARLET FEVER.

SIR,—There can, I think, be little doubt that the large accumulation of vague knowledge on the subject of infectious disease generally, and especially of scarlet fever, is rapidly beginning to focus itself in a way which clears up much of the obscurity that has hitherto prevailed as to both the theory and the treatment of this class of diseases.

The recent publication by Dr. Milne of his epoch-making *Plea for the Home Treatment and Prevention of Scarlet Fever*[1] is one of the most important contributions that has been made to this desirable end. I have myself, no doubt in common with many other medical officers of health, hitherto hesitated to accept Dr. Milne's statements as to the results he has achieved by the methods of inunction and throat swabbing on which he relies, partly because I was not satisfied with the evidence on which they were founded, but mainly because they were in direct opposition to the view that has gradually come to be accepted as to the relatively small importance of the skin as a source of infection in scarlet fever. But in view of the very strong evidence which Dr. Milne now produces in the book referred to, not only as to his own experience of this treatment but of the opinions of medical officers of health and others who have had personal opportunity of observing its results at Ilford, I feel that scepticism is no longer justified, and that, whatever may be the theory of the inunction treatment, its efficacy is beyond question. I do not, of course, overlook the fact that swabbing of the throat with a 10 per cent. solution of carbolic oil is quite as much an indispensable element of Dr. Milne's treatment as the inunction with eucalyptus oil. But until some one can demonstrate as good results from the former method alone as Dr. Milne claims to have obtained from the combination of both, it must be admitted that the inunction method holds the field.

Its acceptance as a *vera causa* will be much facilitated if the difficulty about its assumed action in preventing the diffusion of infection by desquamation alone can be got over. And I think it can. Assuming, as we must, that the application of eucalyptus oil to the skin has a direct influence on the potency of the infection of the disease generally, and believing, as I myself do, that such effect is not due in any important degree to the mere mechanical influence of the oil in preventing the diffusion of the exfoliated particles of epidermis, except, possibly, for a very short period, before their infectivity is destroyed by light and air, and that we must still consider the discharges from the throat, nose, and ear as the main sources of infection, we must, whilst adhering to this opinion, also assume that it is in the highest degree probable that the active principle of eucalyptus oil itself, whatever it may be, is capable of absorption by the skin, and especially by the newly-formed layer of epithelium that is uncovered by the exfoliation of the old epidermis, and that in the modifying influence of this principle on the special infection of the disease in the tissues and blood of the patient is to be found the explanation of the benefits derived from Dr. Milne's practice of inunction.

On this point it is well to remember that, as is admitted, the method of inunction by eucalyptus oil, or by a fairly equivalent preparation (oleusaban), was strongly advocated by Mr. Curgenven many years before Dr. Milne adopted it. The force of this fact is the greater because Mr. Curgenven, I believe, relied solely on inunction with oleusaban, and did not, as Dr. Milne does, complicate the problem by the conjoined swabbing of the throat with carbolic oil. So that, putting these two experiences together, we seem to be driven to the conclusion that it is to the absorption of the active principle of eucalyptus oil, in several ways, as much as and possibly more than to the swabbing of the throat with carbolic oil, that the good results of Dr. Milne's treatment are due. Here we are much assisted in arriving at a conclusion by the illuminating views contained in the article by Dr. Edwards on "An Immunizing Subinfection in Scarlatina" in the JOURNAL of April 30th, p. 1048. There can be no question, I think, in the mind of any one who has had extensive opportunities of noting the infecting vagaries especially of scarlatina and diphtheria, that we have in these two correlated forms of infection to deal with pathological agencies which are not only capable of indefinite modification, in the way both of casual attenuation and energization, but that in their attenuated modifications they are capable of producing results on susceptible persons which develop corresponding degrees of immunity. These facts are so common that they may be said to have passed into the dominion of platitudes.

If this be so, it is easy to see that in the combinations of the practice advocated by Dr. Milne and of the theory as expounded by Dr. Edwards is to be found the key to the effective treatment of scarlet fever and to its practical suppression as a menace to the public health.

I think it necessary to add, in conclusion, that I am myself so strongly impressed with the importance of this matter that I propose at once to give Dr. Milne's treatment a fair trial, feeling that I am not justified in any longer refraining from doing so.—I am, etc.,

Gloucester, April 30th. FRANCIS T. BOND, M.D.Lond.

THE ROYAL COLLEGE OF SURGEONS AND DENTISTS.

SIR,—I think in the interests of British qualified dentists, especially those practising abroad, that the Royal College of Surgeons might be pleased to change the designation of their title from Licentiate to Master of Dental Surgery, or were it possible to even style them Fellows of the Royal College of Dental Surgeons. The opposition in dentistry is very strong, and American dentists hold the title of doctors of dental surgery. This gives them an apparent superiority over the Britisher, whose L.D.S. is considered by the public to be a lower qualification, and no doubt places them at a disadvantage. In British India, where no Dental Registration Act exists, the American dentists appear to have the monopoly of the practice, and the reasons are obvious—they are either better skilled, or their professional designation makes a more distinct impression. Of course, in America there are only Doctors or Masters in all faculties. I am not a dentist but am merely relating facts.—I am, etc.,

ALF. MCCABE-DALLAS, L.R.C.P.I., L.M.Dubl. D.T.M.Liverpool.

Calcutta, April 21st.

[1] See also BRITISH MEDICAL JOURNAL, 1908, vol. ii, p. 1333.

FAECAL VOMITING DURING ANAESTHESIA.

SIR,—In his interesting paper Dr. Dudley Buxton makes some original suggestions for the management of such cases. The performance of laryngotomy or tracheotomy, with the passage of a stomach tube and plugging of the pharynx is admirable from the point of view of thoroughness. It would completely obviate any risk from regurgitation from the stomach, but it would certainly increase the shock, cause some disturbance, and delay the ultimate operation. Can we not achieve the same result by less drastic methods?

For many years I have used and recommended a much more simple and obvious procedure, which so far has given most satisfactory results. It consists in passing a stomach tube and lavage of the stomach as recommended by Dr. Buxton, but the tube is kept in the stomach throughout the whole operation. The result is that the stomach is emptied before the operation is begun and kept empty until the patient regains consciousness. This method is simple, easily and quickly put into execution, entails no shock, and is sufficiently efficacious. The presence of the tube in the gullet in no way seriously interferes with respiration and does not hamper the anaesthetist or operator.

Should it be considered necessary to shut off the larynx completely, this too could now be done, without recourse to a laryngotomy, by Kuhn's "per oral intubation tube." For this suggestion I am indebted to Dr. Falkner Hill, who, with his colleague Dr. Ed. Moir, has used the apparatus in Dr. Milligan's clinic with success during the past year. The apparatus consists of a long-jointed flexible metal tube with a cannula at one end and attached to the other a funnel covered with flannel, similar to that supplied with Trendelenburg's cannula. The patient is anaesthetized and the cannula passed into the larynx and the pharynx plugged, the tube is allowed to hang out at one angle of the mouth, and the anaesthesia is kept up by dropping chloroform on the flannel stretched over the funnel, as in the Trendelenburg's apparatus.

Apart from the initial difficulty of getting the cannula into the larynx, this apparatus gives excellent results in operations on the jaw and naso-pharynx, and could equally be applied in cases of faecal regurgitation. Up to the present time, however, I have found the mere retention of a tube in the stomach quite sufficient.

In Mr. Milward's case, referred to by Dr. Buxton, it is to be noted that notwithstanding the quantity of fluid regurgitated, there was no appreciable amount found in the air passages. It is stated "the trachea contained some dark greenish mucoid material resembling vomit, but not sufficient to have caused asphyxia." Considered in conjunction with some cases I have seen and others that are reported, this confirms me in the belief that in many such instances death is not actually due to suffocation from vomited matter sucked into the lungs. It is most probably due to the disease, to failure of the circulation, etc., and the sudden profuse gush of vomit is part of the final act of dissolution, and as such occurs in many diseases quite apart from the action of anaesthetics.—I am, etc.,

Manchester, May 3rd. ALEXR. WILSON.

CHILD EMIGRATION.

SIR,—I have read Dr. Dunlop's letter in the JOURNAL of April 23rd advocating child emigration as a solution of the problem of "dependent children," and suggesting that some scheme of child emigration should be included in our Poor Law system.

Does he mean that power should be given to the Poor Law authorities to take children away from such parents as "cannot afford to, or will not maintain them properly," and send them to the colonies, even without the consent of the parents? Such a power could not be exerted except in cases in which the grossest cruelty or neglect could be proved. Who is to decide upon the amount of unworthiness on the part of the parents that would justify such a measure?

In the case of orphans and other children thrown entirely upon the hands of the Poor Law authorities, Dr. Dunlop's suggestion has much to recommend it. It appears to be generally agreed that child emigration is a sound expedient if properly supervised. But we have at present no real systematization of any such work.

Two plans have so far been adopted, and those on a quite inadequate scale. One is the "boarding out" of destitute children with colonial families, sometimes as adopted children, sometimes, without any pretence of charity on the part of the hosts, for payment. The other method is the training of such children at home, preparatory to sending them to the colonies in early youth.

In the former case there is an obvious risk of the children being exploited for the advantage of those who take charge of them in the colonies. Haphazard foster parentage is bound to have such drawbacks. In the latter case the youth is sent to a new life in a new country lacking the essential training of a young emigrant, and therefore in a much less advantageous position than he would have occupied at his age had he been sent to the colony as a child, and educated and practically trained on the spot.

A solution of these difficulties possibly lies in the farm-school method, which is the policy, I believe, of the Society for the Furtherance of Child Emigration, founded last year at Oxford by colonials. The society proposes to take waif children to the colonies at the age of 8 to 10, and to give them a complete general and agricultural education on the society's farms in the colonies.

At the Emigration Conference, initiated by the Royal Colonial Institute, to be held on May 30th and 31st, this question is, I believe, to be discussed.—I am, etc.,

London, W., May 2nd. GEORGE JOHNSTON.

The Services.

ROYAL NAVY MEDICAL SERVICE.

DISTRIBUTION OF PRIZES.

THE course of instruction of the newly entered surgeons at Haslar was brought to a close on April 7th by the distribution of the prizes by Inspector-General James Porter, C.B., M.D., Director-General of the Medical Department of the Navy.

The gold medal was gained by Surgeon R. J. G. Parnell, of King's College Hospital. The silver medal was awarded to Surgeon J. H. B. Martin, M.B., B.A., of Cambridge University and London Hospital. The two above-named officers took the first and second places respectively in the combined London and Haslar examinations. Three Navy Regulation Pocket Cases—prizes for subjects in which instruction is given at Haslar—were awarded to Surgeons R. J. G. Parnell, J. H. B. Martin, M.B., B.A., and T. C. Patterson, M.B.

The following list shows the places gained by the combined marks of the London and Haslar examinations:

	Marks.
1. Surgeon R. J. G. Parnell	5,037
2. Surgeon J. H. B. Martin, M.B., B.A.	4,690
3. Surgeon F. L. Smith	4,620
4. Surgeon C. D. Bell, M.B.	4,585
5. Surgeon T. C. Patterson, M.B.	4,552
6. Surgeon M. H. Langford	4,526
7. Surgeon A. Fairley, M.B.	4,489
8. Surgeon F. C. Searle	4,434
9. Surgeon A. G. V. French	4,374
10. Surgeon W. E. Lloyd	4,322
11. Surgeon J. P. Barry	4,201
12. Surgeon C. G. Sprague	4,044
13. Surgeon A. C. Rusack, M.B.	3,980

ROYAL ARMY MEDICAL CORPS (TERRITORIAL).

MILITARY HYGIENE.

A. N. M.—We are informed that Lieutenant-Colonel Caldwell's work on *Military Hygiene* (10s. 6d.) is a very good book to read for the examination in epidemiology. Nothing is laid down as to the scope of the examination beyond "Epidemiology and Management of Epidemics." The questions in sanitation and epidemiology at the examination held last December are being published in the *Report of the Examination held in December, 1909, of Officers of the Regular Forces, Canadian Permanent Forces, etc.*, and will shortly be on sale. Officers can obtain copies at a reduced price by making application through the usual channels on Army Form L 1372.

THE Territorial Decoration has been conferred upon Major Hugh Jones Roberts, of the 6th (Carnarvonshire and Anglesey) Battalion Royal Welsh Fusiliers.

VOLUNTEER OFFICERS' DECORATION

THE Volunteer Officers' Decoration has been conferred pon Surgeon-Major E. A. C. Hindmarsh, Behar Light Horse, an Indian Volunteer Corps.

Medico-Legal.

SCHOOL ATTENDANCE AND MEDICAL CERTIFICATES.

BEFORE the West Penwith magistrates at Penzance on Wednesday Charles Ladner of Pendeen was summoned for not sending his child to school. It had been previously proved that the child had not attended school since September, 1908, and the case was adjourned that defendant should have an opportunity of producing a medical certificate.

Mr. J. Vician Thomas, for the defendant, said this was a test case. The Education Authority asked people to provide a medical certificate. The defendant was a club patient, and there was no duty on the part of the doctor to supply certificates free of expense. The doctors offered to supply those certificates if the Education Authority were prepared to pay a reasonable fee in the same way as they did, Dr. Nesbitt informed him, in other counties. Cornwall seemed to be an exception in that respect. The authority would not pay, and the consequence was that the doctor would not give a certificate. He would call the doctor, and ask for a dismissal of the case and a decision that the authority should pay a small fee to the medical man.

Dr. Nesbitt said the defendant's child was unfit to attend school, as it was suffering from a disease which would make it a nuisance to the school and scholars.

Mr. E. C. Harvey, Clerk to the Penzance District Education Committee, contended that there was no need to have brought Dr. Nesbitt there, as the defendant should have taken the ordinary course of furnishing a medical certificate. It was the duty of the Education Committee to pay a medical man to prove for parents that their children were not fit to attend school.

The case was dismissed, but the Bench did not allow any fee for the medical witness.

ACTION FOR RECOVERY OF FEES.

IN Liskeard County Court, on Monday, before his Honour Judge Granger, K.C., Messrs. Hingston, Carter, and Pearse, surgeons, Liskeard, claimed £14 13s. 4d. from Hans Scharien, poultry farmer, of Rosewarne, Mayfield, Sussex, balance of charges for professional attendance on, and medicine supplied to, Miss Isabel Scharien, daughter of the defendant. Mr. A. W. Venning for the plaintiffs; Mr. J. H. Elliott for the defendant.

Mr. Venning stated that in April, 1908, the defendant's daughter went to stay as a boarder at the house of Mrs. Lord, of Trevaria, Morvah, some six miles from Liskeard. Miss Scharien remained with Mrs. Lord until November, 1909, and the defendant paid for her board and lodgings, the receipts being sent to the defendant. The daughter became very ill, and Mrs. Lord wrote to Hans Scharien, and asked if a doctor should be engaged. The defendant wrote to Mrs. Lord that she should call in the doctor she usually engaged or get another for his daughter. This was done, as it was thought the daughter would die. In November, 1909, the defendant took his daughter home. When the plaintiffs sent in their bill Scharien replied that he was not liable.

Mrs. Lord having given evidence, she was asked by Mr. Elliott: Do you know that Miss Scharien was an inveterate drug taker?—No; I never heard so; her father never said so. What he said was he would pay for the doctor if he was required. Miss Scharien was quite capable of taking care of herself.

Dr. William H. St. Ledger Carter said he never saw any signs that she was an inveterate morphine taker.

Dr. R. Hingston also gave evidence.

The defendant denied that he ever sent a letter to Mrs. Lord that she should employ a doctor. His daughter was 35 years of age, and all he paid for was board and lodgings. What he said was, if it was a case for the hospital she should be placed there. Whilst his daughter was in Cornwall he sent her money for board and lodgings once a fortnight. His daughter was an inveterate drug taker for twenty years. In reply to Mr. Venning the defendant said he had maintained his daughter all her life. There were other doctors' bills for her which he had refused to pay.

His Honour said there was sufficient evidence that the defendant authorized Mrs. Lord to get the doctor. It was a case which ought to be taken notice of in Cornwall. A large number of invalids were sent there, and arrangements made for board and lodgings. Care ought to be taken that those people who sent invalids down should also give an authority as to who was responsible for medical attendance. There was a liability upon the defendant in this case, and there would be judgement for the plaintiffs with costs.

AN ACTION FOR LIBEL.

ON May 6th Mr. Justice Darling, sitting with a jury, heard the case of Hooper *v.* W. Piles, Limited. The plaintiff was a medical man practising at Sutton, and the defendants were the proprietors of the *Sutton Herald*. The action was for a libel alleged to have been published in the defendants' paper on July 10th, 1909.

Mr. McCardie appeared for the plaintiff; Mr. Duke, K.C., and Mr. W. W. Mackenzie for the defendants.

It appeared that the plaintiff was the Chairman of the Sutton Urban District Council, and was on its sanitary committee. In March, 1909, a child who had been suffering from scarlet fever was discharged from the Cuddington Isolation Hospital, which was in the charge of the council. The child, who was also suffering from phthisis, unfortunately died, and subsequently scarlet fever and septic tonsillitis broke out in her house. Subsequently, at the instance of the plaintiff, the council sent the papers relating to the matter to the Local Government Board. On July 10th the defendants published a letter in which a correspondent mentioned the plaintiff by name, and, while blaming the council as a whole, cast aspersions upon the plaintiff, and alleged that he said at the council meeting: "It would be a good thing if the sanitary committee would give them a strong assurance that they investigated the matter and had evidence that nothing of the sort would take place in the future, and that the means of isolation were such that it was impossible for any patient to leave the hospital with the germs of disease upon him." The plaintiff was not the councillor who uttered these words. The lady who wrote the letter apologized, but the newspaper refused to do so, alleging that the plaintiff's name had been inserted in the letter by some one in their office and wholly without authority.

After the case had been opened a settlement was arrived at. The defendants by their counsel said that they had no intention of injuring the plaintiff, and that there was no justification for any imputation upon him. They were willing to pay the plaintiff's costs.

A juror was accordingly withdrawn.

WORKMEN'S COMPENSATION.

Objection to Medical Referees.

IN a case (Wigan, May 3rd) it was pointed out that the applicant objected to going before a medical referee. Judge Bradbury, who was invited to express his view on this subject, said his experience taught him that when certain cases came into court there were several medical men on each side, and after hearing the evidence he sent the cases to the medical referee for his decision. The question as to whether a man was fit to resume work could best be decided by a medical man. This particular case had to go to the medical referee, and if the applicant did not agree he would probably have to pay the costs. The medical referee was the proper person to decide the matter, and not a lawyer.

Accident or Pneumonia?

In a case heard at Liverpool it appeared that a workman was engaged in making concrete blocks. While so employed he felt a little splash in his eye. He did not attach any importance to the occurrence, but he subsequently developed pneumonia, for which he was removed to the infirmary. His eye eventually became badly inflamed, and had to be removed. The question was whether the necessity for removing the eye arose owing to the presence of a foreign substance, or whether it was set up by the pneumonia. Two doctors having expressed the view that the inflammation of the eye had been caused by the introduction of a foreign substance, an award was made in favour of the applicant.

Workmen Wearing Waistbelts.

In a case at Sheffield, the applicant alleged that he strained himself while trying to start a gas engine which was out of repair and so caused a rupture. His wages were £1 13s. a week *plus* emoluments attached to the position of caretaker, which he valued at 8s. a week. He claimed half wages from the date of the accident till further notice. In the course of the case Mr. Arthur Connell, a surgeon, said that the workmen who wore these belts pushed the internal organs into the pelvis, and produced a condition which frequently necessitated a surgical operation. Subsequently Mr. Connell explained to a reporter that these men, like women who wore tightly laced corsets, put pressure on the wrong place. If they required support, he added, they should wear a belt like the old time loin cloth, lower down where there were hard bones. His Honour held that there was a tendency from an old standing inclination to rupture in the plaintiff, and that it was hastened to the extent of incapacity by the strain of starting the fly wheel. He gave an award for 19s. weekly from December 10th to February 24th.

Death in Hospital.

In a case at Manchester (May 2nd) it appeared that the husband of the applicant was injured whilst lifting a heavy stone in the pit. He sustained a rupture, bnt did not give notice of the accident because at that time incapacitated. In June, 1909, he hurt himself again by slipping when at work in the colliery. He went to a bowling green that night, and was afterwards seen by a doctor, who diagnosed strangulated hernia. He was sent to the hospital and there he consented to an operation. There was an accident during the operation, the bladder being punctured. This necessitated two further operations, and the man died. An inquest was held, and the verdict returned was that death was due to "peritonitis and cellulitis, due to an accidental puncture of the bladder during an operation for a rupture caused by lifting a heavy stone in the colliery." The widow was held to be entitled to an award.

Light Work.

In a case at Rotherham a pitman who had been injured was offered light work on the surface. This he objected to, apparently on the ground that he did not care for it. In order, apparently, to disabuse his mind on this subject the learned judge awarded him half-wages only for a short period, after which he was to have 1d. a week.

SALE OF SHARE.

VENDOR.—We have carefully considered our correspondent's letter, and do not think that any good is likely to arise by further reference to the matter in the JOURNAL.

Obituary.

FREDERICK CHARLES HITCHINS, F.R.C.S Edin.

With much regret we record the death of Dr. Frederick Charles Hitchins, of Trevarrick, St. Austell, Cornwall. It occurred at his mother's house in the same neighbourhood on Sunday, May 8th, as the issue of a trying illness. Dr. Hitchins, a Guy's student, became M.R.C.S., L.R.C.P. in 1897, and some eight years later was admitted to the Fellowship of the Royal College of Surgeons of Edinburgh. Before settling down in practice on his own behalf in Cornwall he supplemented his school work by holding an unusually large number of residential appointments at hospitals in various parts of England. Among the institutions at which he thus gained clinical experience were the Royal Hants County Hospital at Winchester, Stamford and Rutland General Infirmary; the Children's Hospital, Bradford; the South Devon and East Cornwall Hospital at Plymouth, at all of which he served a term of office as either assistant or senior house-surgeon. The matured man himself and the nature of his career in Cornwall are well described in the following lines from the pen of a personal friend and colleague: "A native of St. Austell, and belonging to a family well known and respected there, Dr. Hitchins commenced practice some years ago in his native town, and the saying, 'A prophet is not without honour,' etc., did not in this instance apply; for, in spite of the friendly opposition of other medical men, he had worked up a good practice and was respected by all, and by none more than his professional *confrères*. Though comparatively a young man, and in general practice, it was especially as an operating surgeon that he was sought after, not only in St. Austell, but in the neighbourhood around. Many medical men owe him many a debt of gratitude for kindly help, both in consultation at operations and as an anaesthetist; he was a particularly good anaesthetist, and always so willing to lend a helping hand. I made his acquaintance a little over three years ago, and the acquaintance then formed ripened into a friendship which, had his life been spared, would never have been broken. For many acts of personal and professional kindness to me and mine my saddened heart is deeply grateful. Cheery and genial in manners, a staunch friend, and absolutely straight in his dealings with all, he will be greatly missed. To his sorrowing widowed mother, his brothers, and sister, all who knew and loved him will offer their heartfelt sympathy, and pray that God will comfort them in their sorrow."

By the untimely death of Herbert Nelson Cappe, M.R.C.S., L.R.C.P., the Surrey County Council has lost a trustworthy officer and all who knew him a sincere friend. He was the only son of Mr. Walter Cappe, who was appointed Clerk and Steward of Brookwood Asylum when it was completed in 1867. Educated for his profession at University College Hospital, he qualified in 1888, and immediately acted as locumtenent at the asylum for three months. For a short time thereafter he went into private practice, but returned to Brookwood as Junior Medical Officer sixteen years ago, being appointed to the Senior position on Dr. Gayton leaving to take charge of the new asylum at Netherne late in 1908. The circumstances of his death were peculiarly sad, as within a short time he had every reason to believe that he would have realized the height of his ambition and have been appointed Medical Superintendent at the place where the greater part of his life had been spent. While conducting a *post mortem* examination he became infected, and after a gallant struggle for a month, and in spite of everything that could be done for him, he died of septicaemia on April 22nd at the age of 44. Always painstaking and conscientious in the performance of his duties, an able physician, and an agreeable colleague, his loss will long be felt by both the staff and patients of the asylum. The *Surrey Advertiser*, in recording his death, says: "Possessing a winning personality, he was immensely popular with both staff and patients, and his death has cast quite a gloom over the whole institution. A fine all-round sportsman, Mr. Cappe was perhaps best known outside the precincts of Brookwood as a cricketer. He was a member of the Surrey Cricket Club; and he captained the asylum team, upon whose ground, one of the finest in Surrey, he made many centuries in faultless style, while his fielding was quite up to county form."

Dr. James Morris, Dunfermline, one of the oldest medical practitioners in Scotland, passed away on May 2nd. Born eighty-four years ago, he began his career as a chemist's apprentice in Dunfermline. He then applied himself to the study of medicine, and took the diploma of the Faculty of Physicians and Surgeons of Glasgow in 1849. He spent all his professional life in Dunfermline. Of a somewhat blunt manner, he had a kindly disposition, which was manifested in the care which he bestowed upon his patients, even in minor ailments. The ideal of the family doctor, he took an interest in the father, the mother, and the whole of the family, and many visits which he made to the home were never charged for. Especially was this so in the case of the poor, to whom he was a warm friend. Dr. Morris held various public appointments. On the occasion of his jubilee as a doctor, Dr. Morris was, in 1899, the guest of the Fifeshire Medical Association and the Corporation of Dunfermline, from whom and others he received substantial tokens of goodwill. He will be much missed by the medical profession in the west of Fife, by whom he was held in great esteem.

We regret to record the death at Old Colwyn of Dr. George Henry Whitaker, formerly of Horwich. To most of the inhabitants of that locality his was a face of almost lifelong familiarity, and the year or two which had elapsed since he bade it farewell had not sufficed to diminish the affection and esteem in which he was held. Born in Rawtenstall, Lancashire, Dr. Whitaker received his professional education partly at Glasgow University, partly at University College, London, became L.R.C.P., L.R.C.S. Edin., in 1875, and celebrated his release from the schools by a voyage to China in charge of one of the steamships of the Oceanic Company. Not long after his return he settled down in Horwich, and he and the village grew, so to speak, together. It was a small hamlet when he first joined it as a young man of 24, and a township of some 16,000 inhabitants when he left it on the eve of old age. He was in charge of the sanitary affairs in the locality almost from the beginning of his connexion with it, being appointed Medical Officer of Health by the Local Government Board in 1875, and subsequently elected to the same office by the Urban District Council in 1895. He also held appointment under the Poor Law, and was Certifying Surgeon under the Factories Act, and had charge of the Joint Isolation Hospital. On his retirement from these various offices some fifteen months ago, the Urban District Council presented him with an illuminated address recording its appreciation of his services. At a somewhat earlier date he had been appointed to the commission of the peace for the county, an honour which both the public and his professional brethren regarded as a just recognition of his abilities. In private life Dr. Whitaker was an active Freemason, and as a man of musical taste and ability made an excellent president of the Horwich Orchestral Society. He was, too, a good sailor, and spent most of his holidays on the water. Dr. Whitaker was married and is survived by his wife. His last resting place overlooks Colwyn Bay.

Deaths in the Profession Abroad.—Among the members of the medical profession in foreign countries who have recently died are Professor Hermann Lenhartz, Director of the Eppendorf Hospital, Hamburg, aged 56; Dr. Ernst L. V. Oedmansson, sometime Professor of Syphiligraphy in the Medical Faculty of Stockholm; Dr. Van Beneden, Professor of Comparative Anatomy in the University of Liége, member of nearly every learned society of Europe, a holder of honorary degrees from the Universities of Cambridge, Edinburgh, Leipzig, Jena, and Brussels; and Dr. M. Afanassieff, sometime Professor of Anatomy and afterwards Professor of Internal Medicine in the Army Medical Academy of St. Petersburg, and Director of the Grand Duchess Helena Pawlawna Clinical Institute in the same city, author of numerous writings on medicine and pathology, aged 60.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

Medical Degrees.

WE take the following important statement from the *Times* of May 5th:

For nearly two years a committee of the Special Board for Medicine has been considering the regulations for the degrees of Bachelor of Medicine and Doctor of Medicine. The changes and developments made in 1900 were only partially successful, and the Special Board have felt for some time past that further revision of the examination was inevitable, especially as newer subjects have been advancing ever-increasing claims.

In the changes made in 1900 pathology and pharmacology were included in the first part, leaving surgery, midwifery, and medicine for the second part of the final examination. This was so far satisfactory that the student gained a scientific foundation for a study of disease and of treatment; but the second part now became somewhat unwieldy. Moreover, it was thought that there was a tendency on the part of those who had passed the first part of the examination to consider that it was no longer necessary to study pathology or pharmacology, even in connexion with the cases they were studying in hospital; and the result has been that in the later years too little time has been devoted to clinical and practical work and too much to the study of textbooks. Then, again, although candidates were able to obtain credit for any two of the larger sections—surgery, midwifery, or medicine—and at a later date to qualify for a degree by passing the third, many candidates were tempted to force their preparation and to present themselves prematurely for all three sections at once. Under the new regulations pharmacology and general pathology, along with bacteriology, are separated from the final examination and are introduced as a second part of the second examination. This examination will be more of the nature of a test of the results of teaching, and may be taken six months after the first part—anatomy and physiology—has been passed.

The final examination will be divided up as formerly, up to 1900, surgery and midwifery being included in the first part, which may be entered for, should the student wish, at the end of five years' study and two years' hospital practice. The principles and practice of physic (including the diseases of children, mental diseases, and medical jurisprudence), pathology (including hygiene and preventive medicine), and pharmacology (including therapeutics and toxicology) may be taken as the second part of the third examination after the student has passed both parts of the second M.B. examination and after he has completed three years of hospital practice. At this date, of course, should the student wish it, he may take both first and second parts. In this way the examination will not press so heavily upon men of average ability, and the arrangement will encourage them to devote themselves to a more thorough preparation for the various parts of the examination. Further, owing to the rearrangement of the times for examination in pathology and pharmacology, the student will be able to clear this examination out of the way in time for him to begin his studies in the London or other hospitals, and there will be no unnecessary loss of time during the curriculum.

In view of the increasing amount and complexity of the work involved in the examination of theses for the degree of M.D. and in some measure to lighten the labours of the Regius Professor of Physic, a Degree Committee consisting of four additional members of the Special Board for Medicine will, in future, assist the Regius Professor and his assessor in dealing with theses and keeping of acts for the M.D. degree. The whole of these suggested amendments appear to make for efficiency. They will secure a better arrangement of both preparation and examination, and will encourage practical and clinical work wherever possible.

UNIVERSITY OF LONDON.

UNIVERSITY COLLEGE.

Advanced Lectures in Physiology.

DR. GORDON HOLMES delivered the first of his course of eight lectures on the mechanism of co-ordination in the central nervous system in the Institution of Physiology on May 9th. The lectures will be continued on May 23rd and the following Mondays at 5 p.m.

UNIVERSITY OF SHEFFIELD.

Anatomical Department.

IN the notice of appointments published last week, p. 1149, it should have been stated that Mr. Alexander Wilson, M.B., B.Ch. Aberd., had been appointed Demonstrator in Anatomy in succession to Mr. John Annan, M.B., Ch.B., appointed Demonstrator in the University of Bristol. Mr. A. Garrick Wilson, F.R.C.S., who has been appointed Tutor in Surgery, has resigned the appointment of Honorary Demonstrator.

UNIVERSITY OF BIRMINGHAM.

THE Ingleby Lectures before the University of Birmingham will be given this year by Professor R. F. C. Leith on May 27th and June 3rd, at 4 p.m., the subject being tumours of the body of the uterus. Professor Peter Thompson will give two post-graduate lectures in anatomy in the anatomical lecture theatre of the university, on some early human embryos, on June 7th and 14th, at 4 p.m.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

THE following constitute the Boards of Examiners for the year 1910-11:

COURT "A." (for the conjoint diplomas, D.P.H. and Preliminary Examination).—*Anatomy:* A. Campbell Geddes, G. Jameson Johnston. *Surgery:* C. A. K. Ball, Alexander Blayney, R. J. Harvey, Seton Pringle. *Physiology and Histology:* E. L'Estrange Ledwich. *Pathology and Bacteriology:* A. Hamilton White. *Midwifery and Gynaecology:* F. W. Kidd. *Biology:* J. J. Burgess. *Ophthalmology:* A. H. Benson, H. H. B. Cunningham. *Chemistry:* R. J. Montgomery. *Sanitary Law and Vital Statistics:* E. F. Stephenson. *Engineering and Architecture:* J. H. Fergusson. *Languages:* William Kennedy. *Mathematics, Physics, Dictation, and English Essay:* J. W. Tristram.

COURT "B." (F.R.C.S.I., L.R.C.S.I., L.M. and L.D.S.).—*Anatomy:* A. Campbell Geddes, G. J. Johnston. *Surgery:* C. A. K. Ball, Alexander Blayney, L. G. Gunn, R. J. Harvey. *Physiology and Histology:* E. L'Estrange Ledwich, J. A. Scott. *Pathology and Bacteriology:* L. W. Rowlette, A. Hamilton White. *Midwifery and Gynaecology:* F. W. Kidd. *Chemistry and Physics:* E. Lapper, R. J. Montgomery. *Dental Surgery and Pathology:* G. M. P. Murray, W. G. Story. *Mechanical Dentistry:* D. L. Rogers, E. Sheridan.

The annual report of the Council will be submitted at a general meeting of the College on Saturday, June 4th; the election of President, Vice-President, Council, and Secretary takes place the following Monday. The names of candidates must be in the hands of the Registrar on or before Tuesday, May 24th; notices of motion for which priority is desired at the general meeting should also be sent in before that date.

APOTHECARIES' HALL OF IRELAND.

THE following candidates have been approved at the examinations indicated:

BIOLOGY.—M. Burke Kennedy, D. J. Chadwick.
PHYSICS.—H. Hutchinson.
PHYSIOLOGY.—J. M. J. Levens, W. MacArgan Scott.
PATHOLOGY.—G. M. Mayberry.
PHARMACY.—M. Neary.
MEDICAL JURISPRUDENCE AND HYGIENE.—M. Neary.
MEDICINE.—W. J. Fletcher.
SURGERY.—W. J. Fletcher, W. S. Dervoux.
MIDWIFERY.—W. J. Fletcher, W. S. Dervoux, G. M. Mayberry, A. Ardill, J. V. Pestana.

EXAMINATION FOR REGISTERED PRACTITIONERS.
M. P. Desmond, P. V. Dolan, R. McDonnell.

Public Health AND POOR LAW MEDICAL SERVICES.

INSPECTION OF MEAT IN GLASGOW.

THE annual report of the Veterinary Surgeon to the Corporation of Glasgow, on the inspection of the city's supply of meat, fish, and milk, deals especially with the subject of tuberculosis in cattle. Of 65,033 home cattle slaughtered at the abattoirs 9,385 were affected with tuberculosis; of 49,881 swine, 2,547 were affected; and of 19,229 foreign cattle, 317 were affected. There is therefore a very strong incentive to adopt stringent measures to eradicate as far as possible this disease. Mr. Trotter says that it is incomprehensible that the British authorities have not carried out the recommendations of the Royal Commission of 1898 or made any attempt to deal with the bovine scourge, seeing that it not only causes an enormous loss in food and money, but is a menace to the health of the citizens. No attempt has been made to prevent the infection of young stock. During the past year 45 cows in city cowsheds were found affected and dealt with, and of 15,736 milch cows outside the city supplying milk for the city, 160 were found affected. The report gives a number of interesting details on the food supply of Glasgow and the sources of contamination.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Paisley Burgh.—Dr. Trotter, M.O.H., in dealing in his annua report with the question of antenatal influences, states that 61 children did not survive a week after birth, the deaths of 56 being due to prematurity, or congenital debility. Visitation in such cases was of little use as these children were doomed. With the mother who knew all about babies because she had had eight and buried five, little progress could be made. But with young mothers in the case of the first or second child visitation and advice was more valuable, and in a general way good results were to be hoped for. An investigation made into the home conditions in cases of infants born of working mothers was satisfactory; and the report states that as an industrial town where female labour predominates, the home conditions in Paisley are most creditable. One result of the work of the health visitors, however, was the revelation that in many cases no food was cooked for school children, bread and jam being given for breakfast and the same on return from school. Constitutions were thus undermined and rendered unable to withstand tuberculosis, rickets, etc.

Buckingham Rural District.—The population, estimated at the middle of 1909 was 7,600. The birth-rate was 22.6 and the adjusted death-rate 13.2 per 1,000; the infantile mortality-rate was equal to 70 per 1,000 births. Dr. P. L. Benson, the medical officer of health, draws the attention of the council to the need of a permanent isolation hospital and also of a steam disinfector, both of which should be provided. A large quantity of the milk produced in the district is sent to London, and for the purposes of dairy inspection a veterinary inspector has been appointed by the District Council. In the early part of the year an inspector of the London County Council condemned a dairy cow as suffering from tuberculosis of the udder. The veterinary inspector of the District Council differed from this conclusion, and applied the tuberculin test, with a negative result. A sample of the milk taken by the inspector was examined bacteriologically and declared to be free from tubercle bacilli. Dr. Benson includes in his report some excellent photographic reproductions of a cottage condemned as uninhabitable, two new semi-detached cottages, and the interior and exterior of newly-built cowsheds.

Newark Rural District.—The estimated population in 1909 was 8,035, the birth-rate was 25.3 per 1,000, and the adjusted death-rate 12.5 per 1,000. The infantile mortality-rate was equal to 117 per 1,000 births. There occurred during the year 20 cases of diphtheria, and 5 terminated fatally. The medical officer of health, Dr. Frank Broadbent, expresses the opinion that when this disease once gets well established in a district nearly every case of slight sore throat would reveal the presence of the Loeffler bacillus. He suggests that during the time sore throats are prevalent the education authorities might provide for the school children pleasant antiseptic lozenges in order to prevent the diphtheria bacillus from invading their throats.

Cheshunt Urban District.—The birth-rate in 1909 was 22.5 per 1,000, and the adjusted death-rate 10.8 per 1,000 of the estimated population—13,565. The infantile mortality-rate was 92 per 1,000 births. Although there were 10 deaths registered as due to phthisis, there was not a single notification of this disease among poor persons. Dr. Walter F. Clark, the medical officer of health, draws attention to the great importance of the question of the housing of the working classes. Not only, he says, are cases of diphtheria more likely to occur in insanitary houses, but when the patient is removed to a healthy atmosphere he still feels the effect of the want of sanitation from which he has already suffered. More than one of the patients who died from diphtheria in the isolation hospital had succumbed not so much to the virulence of the illness as to his inability to live through it because he had lived previously in unhealthy surroundings. During an outbreak of scarlet fever in May Dr. Clark was very successful in hunting down several "missed" cases of the disease, and thus, no doubt, shortened the epidemic.

Barnstaple Borough.—Based on an estimated population of 14,462, the birth-rate in 1909 was 21.6 per 1,000, and the adjusted death-rate 12.9 per 1,000. The infantile mortality-rate was equal to 71 per 1,000 births. Of the 23 illegitimate children born, 7 died during the year. The water supply of the town appears to be ample, as much as 40 gallons per head of the population being used daily. The supply is derived from the North Yeo river at Bratton Cross, some five miles distant from Barnstaple. Before entering the service reservoirs the water passes through sand filters, of which there are four, with a total area of 8,800 sq. ft. The medical officer of health, Dr. J. R. Harper, refers with satisfaction to the assistance which the bacteriological laboratory of the Devon County Council has been to him, and he suggests that its sphere of activity might be extended.

Barnstaple Rural District.—The birth-rate in 1909 was 22.2 per 1,000 of the estimated population of 16,620, and the adjusted death-rate 14.8 per 1,000. The infantile mortality-rate was equal to 49 per 1,000 births. For the most part the district appears to be in a satisfactory condition as regards its water supply. A scheme has been agreed upon for the supply of Instow and some adjoining parishes from the mains of the town of Barnstaple. The parish of Georgeham has a very indifferent supply. There are about 200 inhabitants, and Dr. J. R. Harper, the medical officer of health, states that epidemic disease, either typhoid fever or diphtheria, appears every year in some part of the village. He very properly advises that before any scheme of increased sewerage is undertaken there should be obtained a wholesome supply of drinking water.

Amble (Northumberland) Rural District.—The estimated population of this district at the middle of 1909 was 6,030. The birth-rate was 25.3 per 1,000, and the death-rate 9.1 per 1,000. The infantile mortality-rate was equal to 92 per 1,000 births, and although this is considerably lower than that recorded in former years, the medical officer of health (Dr. H. Martyn Stumbles) considers it is still unnecessarily high and might be reduced at least 50 per cent. He looks to the education of the mothers as more likely than anything else to effect an improvement. It is satisfactory to find that the question of erecting a public slaughterhouse is under the consideration of the District Council, so that those slaughterhouses in the town which are surrounded by so many houses may be done away with. A more urgent reform appears to be the discontinuance of promiscuous tipping of domestic refuse and excreta—a practice which cannot fail to be a menace to the health of the inhabitants.

Egham Urban District.—Based upon an estimated population of 11,895, the birth-rate in 1909 was 19.6 per 1,000 and the adjusted death-rate 10.5 per 1,000. The infantile mortality-rate was equal to 77 per 1,000 births. One case of phthisis among poor persons was notified, and 12 deaths occurred from this disease. As many as 60 cases, all non-fatal, of scarlet fever occurred, and in this connexion the medical officer of health, Dr. G. Trew Cattell, draws attention to the absence of any means of isolating cases of infectious disease in the district. This want will, however, shortly be remedied, for a resident in the district, Baron Schroder, has come forward and given a valuable piece of ground as a site for an isolation hospital which is now being erected.

SANITAS.—*Soils and Subsoils from a Sanitary Point of View, with Special Reference to London and its Neighbourhood*, published by Stanford, price 1s. 6d. There is also a great deal of useful information in connexion with geology and public health in the third edition of Notter and Firth's *Theory and Practice of Hygiene*, published by J. and A. Churchill.

ELEMENTS OF ETIQUETTE.—The Local Government Board has stated that, as a general rule, it is unnecessary and undesirable that a medical officer of health should make a personal examination of patients suffering from infectious diseases notified under the Notification Acts in order to test the accuracy of the certificates. If, in any special instance, the medical officer of health deems it desirable that he should make a personal examination, the Board considers this should only be done with the consent of the patient or those having charge of the patient, and that the medical practitioner in charge of the case should always be communicated with and his co-operation secured if possible.

CERTIFICATION OF ALLEGED LUNATICS FOR DETENTION IN WORKHOUSES.

LEX, who is a district medical officer in a provincial union, states that he has recently had some differences with the relieving officer in reference to cases of alleged lunacy which had to be sent to the workhouse, and that it has been more or less a practice for such cases to be treated in the following way: A magistrate gives a formal order for the patient's detention in the workhouse for observation, this order to last for fourteen days if so required. In addition to this order, the relieving officer expects the district medical officer to take some responsibility in reference to the detention of such cases, and usually applies to him to attach his signature to a form of medical certificate (originally designed for certifying cases of illness and not for lunacy), after writing the word "insane" on such certificate. Our correspondent considers that by complying with the request of the relieving officer he may find he has incurred some more or less serious responsibility by informally certifying such patients as insane. He asks whether, as a district medical officer, he is bound to certify as required when he may not have had sufficient opportunity to ascertain the precise mental condition of the patient, and, moreover, may not know of anything to justify the patient's detention either for fourteen days or for any less length of time, as by so doing, were the patient not eventually found to be insane, he might be involved in some trouble.

*** It would appear that by section 21 of the Lunacy Act any justice having the necessary jurisdiction, and in cases in which a summary reception order may be made, and in such cases only, can make an order for an alleged lunatic to be sent to the workhouse for observation, and if necessary for detention there for fourteen days; but if he does this either on the application of the relieving officer or on other grounds such order does not appear to require to be accompanied by any medical certificate whatever, and we fail to see that it can be the duty of any district medical officer to supplement in any way such magisterial order. We are quite unable to understand on what grounds an order by a magistrate for fourteen days' detention can ordinarily be required, as by section 20 of the Lunacy Act the relieving officer has full power in all urgent cases to send an alleged lunatic to the workhouse for three days on his own order only, but we are afraid that this last mentioned power of the relieving officer is in some cases abused, as it must be evident that it was intended not to be exercised except in urgent cases, which for some cause or other could not be got off at once to any asylum. The case which led our correspondent to communicate with us was not one of urgency, and we cannot understand how any necessity can have arisen for the patient being sent forthwith to the workhouse either by magistrate or relieving officer.

ELECTION OF MEDICAL OFFICERS OF HEALTH.

FAIR PLAY.—It is not usual for one medical man to canvass for the appointments held by another medical man when the holder has expressed no intention of resigning them. It is usual, but not the invariable custom, for a medical officer of health who has admittedly done his work to the satisfaction of the district council to be re-elected, if he desires re-election, at the termination of his term of office. When a medical officer of health who desires to retain the

office has been superseded by another practitioner, it has of late years been the practice of the Local Government Board to inquire from the district council the reason for the non-election of the retiring officer. A medical officer of health who seeks re-election is quite justified in canvassing for the appointment.

CERTIFICATION OF LUNATICS FOR ASYLUMS.

WE have received the following in reference to this subject:

Kencott House, near Lechlade, Glos.,
May 7th, 1910.

Sir,—Your answer to "M.O.'s" query in the JOURNAL of May 7th, p. 1148, may seriously mislead many practitioners who wish to prevent their private patients from passing into the union medical officer's hands. All "M.O." need do is to provide himself with the proper lunacy forms, call in the nearest magistrate, certify the case, and then send the certificate to the relieving officer for the district in which it occurs. The guardians will pay him the guinea fee in due course.—Yours truly, F. W. PILKINGTON.

*** We may point out to our correspondent that the few lines on the subject to which he refers, which appeared in the BRITISH MEDICAL JOURNAL of May 7th, were for the purpose of giving an answer to a special question asked by "M.O.," namely, whether it is necessary for patients of the class described by him to be certified by the district medical officer, and our reply was to the effect that such form of certification was *not* necessary. We made no attempt to enlighten either "M.O." or others on other points of lunacy law. We cannot say that we regard the method of dealing with lunacy cases suggested by our correspondent as being one to be advocated. The process is more or less irregular throughout, and not in accordance with the spirit of the Lunacy Act, and we have grave doubts as to whether it meets all the requirements of that Act. It seems to us to partake rather too much of a private arrangement by medical practitioners and magistrates, the relieving officer being altogether ignored till the last part of the business, instead of having been applied to at first, and so put in the position of an automaton in the case.

Medical News.

THE Council of the Royal Society of Medicine has decided to postpone all further meetings of sections until after the date of the funeral of His late Majesty.

IN consequence of the death of His Majesty King Edward, no meeting of the Royal Society, of which he was a patron, will be held until further notice.

THE next session of the General Medical Council will open on Tuesday, May 24th, when the President, Sir Donald MacAlister, K.C.B., will take the chair at 2 o'clock.

THE following members of the medical profession have been appointed vice-presidents of the Royal Institution for the ensuing year: Sir Thomas Barlow, Bart., Sir Francis Laking, Bart., and Sir James Crichton-Browne (treasurer).

THE first meeting for the vaccine-therapy discussion before the Royal Society of Medicine, to be held at Morley Hall, George Street, Hanover Square, W., has been postponed from Wednesday, May 18th, at 5 p.m., until Monday, May 23rd, at the same place and the same hour.

THE President and Council of the Medical Society of London will give a conversazione in the rooms of the society, 11, Chandos Street, W., on Monday, May 23rd. A reception will be held by the President at 8.30 p.m., and at 9 p.m. Mr. W. H. Battle will deliver the Annual Oration, the subject selected being Internal Injuries.

AN examination of candidates for not less than ten commissions in the Royal Army Medical Corps will be held on July 27th and following days. Candidates who are over the regulated limit of age at the date of the examination will be permitted to deduct from their actual age any period of service in the field after October 1st, 1899, that they could reckon towards retired pay and gratuity if such deduction would bring them within the age limit. Applications to compete should be made to the Secretary, War Office, London, S.W., not later than July 18th.

THE first course of post-graduate instruction at the Hospital for Sick Children, Great Ormond Street, W.C., on surgical diseases of children, by members of the surgical staff, will begin on Tuesday next at 5 p.m. The courses are of three months' duration, and the classes will be held on Tuesdays and Fridays of each week at 5 p.m. From May 17th to June 9th Mr. George Waugh will discuss diseases of the joints, and from June 14th to July 7th Mr. O. L. Addison general surgical diseases; from July 13th to August 4th Mr. H. G. T. Fairbank will give instruction on deformities. The fee for the course is £5, but tickets for part of course may be obtained by arrangement with the secretary.

THE annual conference of the Child Study Society commences next Thursday at Tunbridge Wells, and concludes on the following Saturday. The first day's proceedings are limited to a reception of delegates and members at the Town Hall at 8.30 p.m., followed by an address from the President of the Society, Sir James Crichton-Browne, F.R.S. Friday's work, beginning at 9.30 a.m., includes the reading of reports from the constituent societies, and of three papers: (1) The Social Life of a Child at a Co-Educational School; (2) The Child as Citizen; (3) The Hand as the Gate of Knowledge and Social Relationship. The following morning is to be read a paper by Miss Alice Ravenhill, recording the results of an investigation into the Play Interests of English Children, based on a preliminary examination of 10,000 returns. The Council of the Society extends a cordial invitation to attend the meeting to all those interested in its objects, and such hospitality as is possible will be offered to delegates and visitors. The local secretary is Miss F. M. Watt, 35, Church Road, Tunbridge Wells.

THE 1910 Tournament of the Medical Golfing Society will be held on Thursday, June 2nd, at Burnham Beeches, by kind invitation of the Burnham Beeches Golf Club. Anyone on the *Medical* or *Dental Registers* can join by payment of the annual subscription, which includes entrance to the tournament. The annual subscription is five shillings. Play will be as follows: Eighteen holes match play *v.* Bogey under handicap: Class I handicaps, 12 and under; Class II handicaps, over 12. The "Henry Morris" challenge cup and the Medical Golfing Society's gold medal will be awarded for the best score under handicap. A first and second prize and a prize for the best last nine holes will be given in each class (no player shall take a first or second prize *and* the prize for the best nine holes). No previous play will be allowed on the day. Members of the Burnham Beeches Golf Club will deduct two from their handicaps. A foursome sweepstake will be arranged in the afternoon. Players must send entry with their annual subscription (five shillings) on or before Monday, May 30th, to L. Eliot Creasy, honorary secretary and treasurer, Medical Golfing Society, 36, Weymouth Street, London, W. (telephone, 904 Paddington). The telephone number of Burnham Beeches Golf Club is 050 Burnham, Bucks. Conveyances will meet the trains at Burnham Beeches Station (G.W.R.).

THE Devonshire Branch of the Red Cross Society has issued a pamphlet entitled *Devonshire Voluntary Aid Organization*, which has been drawn up by Mr. J. S. C. Davis, of Ebberly, Beaford S.O., North Devon, the honorary County Director. It well merits its subtitle, "a handbook for workers;" for though the booklet relates ostensibly only to Devonshire, the information given as to what is being done and what may be done in that county in the direction of voluntary aid to the sick and wounded in time of need is so succinct, compact, and comprehensive, that it might well be found of much use in other counties where Red Cross organization is in progress. The frequency with which accounts of meetings in furtherance of the objects of the Red Cross Society appear in provincial and other papers is good evidence that interest in the subject is not decreasing, and that the work of voluntary aid associations is steadily spreading over the whole country. The latest instance in point is a meeting held at the Mansion House on May 2nd. The Lady Mayoress presided, and in the course of the proceedings announced that Lady Mackinnon, the wife of General Sir Henry Mackinnon, who commanded the C.I.V.'s during the South African war, had consented to take in hand the organization of the Red Cross Society in the City of London, and that a small advisory committee had been appointed to assist her. Ten detachments for men and ten for women would be formed, and steps taken to expand in case of need the general hospitals and establish convalescent homes. It was also stated that several large business houses had undertaken to form first-aid classes among the members of their male staffs, and first-aid and nursing classes among their female employees.

Letters, Notes, and Answers.

BRITISH MEDICAL ASSOCIATION AND BRITISH MEDICAL JOURNAL.

The offices of the British Medical Association and of the British Medical Journal are at 429, Strand, London.

Communications respecting Editorial matters should be addressed to the Editor, 429, Strand, London, W.C.; those concerning business matters, advertisements, non-delivery of the Journal, etc., should be addressed to the Office, 429, Strand, London, W.C.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* British Medical Journal *are devoted will be found under their respective headings.*

QUERIES.

Rusticus writes: A middle-aged lady, of blameless habits, is much distressed by a redness of her nose that has appeared during the last few months. To some extent it is permanently present, but it becomes worse almost immediately after a meal, and is then associated with a burning feeling, the whole face flushing in addition. The condition also becomes more marked towards the end of each day. There is no other symptom of indigestion, and her general health is good. She lives a strenuous life, and lately has had additional burdens of work and anxiety. My own experience of the treatment of red nose in analogous cases has not been encouraging, and I shall be grateful if any of your readers can suggest anything likely to be of service.

Practitioner wishes to know if there is anything new as to the pathology of zona (shingles). He has a case under his care at present, a young man with well-marked eruption extending from the lumbar spine round to the umbilicus on the right side, with a small margin over at both extremities. There is a very abundant crop of vesicles, and the band of eruption will average 2 in., there being, of course, patches of skin clear. He says he felt out of sorts four days ago, and had a slight headache for two days. Otherwise he has been going about as usual. From analogy the affection would appear to be a symptom more than a disease *per se*, but what is the disease? More than one case has appeared in the locality recently.

Tinnitus Aurium.

Verdi asks for suggestions as to a case of right ear tinnitus of five months' duration in an apparently healthy man, aged 42. It is not constant nor synchronous with the cardiac impulse, and worst at night. There is a past history of middle-ear suppuration (as also of malaria) and hearing power in the right ear is slightly diminished, but neither in the ear nor throat is anything explanatory of the tinnitus to be found. Politzerization relieves it, and quinine stops it. At present it is being kept under by quinine salicylate, 6 grains daily. This causes no secondary effects, but our correspondent asks how long can it safely be continued, and what other treatment is available? Bromides have done no good and amyl nitrite makes matters worse; so, too, does smoking.

ANSWERS.

The Drug Habit: Tobacco.

Dr. Jos. S. Bolton (Nottingham) writes: In treating patients for alcoholic inebriety I have occasionally found a distaste produced for tobacco. I should recommend hypodermic injections of strychnine and atropine twice a day. This will remove the depression and lessen the craving. A stomach mixture should also be taken. The tobacco should be stopped at once, or certainly within two days.

Income Tax.

C. P. H. asks what proportion of the expenses and upkeep of a motor car and of a male servant, both kept for professional purposes, can be deducted for income tax purposes.

*** If the car and the servant be kept for professional purposes, the whole of the expenses connected with them should be deducted. The necessity for taking a proportion would only arise if the car or the servant were, in fact, employed to any considerable extent for non-professional purposes, when the expense should be apportioned according to the relative extent of time during which they are employed for each purpose.

Equitas has a resident patient paying 2 guineas a week since October, 1908, and desires to know what proportion of this can reasonably be regarded as profit for the purposes of his income tax return.

* As the weekly fee is so low it would probably be sufficient to regard one-third of the annual receipts as profit. The profit should be added to the receipts of the practice for the years in which it arises, and the income tax return made in one sum on the average of the whole profits for the three years to Christmas, 1909, or March, 1910.

Petrol Duty.

W. R. A.—As explained in the article on the Finance Act in the British Medical Journal of May 7th, p. 1119, a medical man is entitled to repayment of the whole of the petrol duty on petrol used prior to January 1st, 1910, and of one-half the duty on that used since.

Appointments in the Colonies.

Clyde.—(1) The work done by medical men holding Government appointments in the Colonies commonly covers all fields of practice, and to that extent may be said to resemble the work of general practitioners in this country. But the environment and fashion in which it is carried on differ more or less extensively according to the degree of civilization locally attained. (2) With a few exceptions the expenses of life are less than in this country, more especially in colonies whose inhabitants have to content themselves with few of the amenities of domestic existence. (3) The rates of pay vary greatly. Usually they correspond more or less accurately with the amount of work imposed, the opportunities for private practice, the healthiness or otherwise of the climate, and the expenses of life within the colony. (4) The Colonial Office usually has a large number of candidates on its books, but direct family connexion with a colony or political influence at home is sometimes effective in securing early appointment. (5) Non-official appointments in the Colonies are not numerous, and, excepting public health posts in a few large cities, are connected with mines and railways. Young men are preferred, and the pay is never large. Moreover, the appointments lead to nothing. (6) The Colonies and Protectorates in West Central and East Africa have regular medical services, and candidates for admission are at present plentiful, and the same is understood to be true of British Guiana.

LETTERS, NOTES, ETC.

The Speed Limit.

There has recently been a fresh crop of cases in which medical men have been summoned for breaches of the speed limit rules. Usually they have escaped with a fine, the magistrates accepting explanations to the effect that the speed limit had been exceeded owing to the importance of rapidly reaching the bedside of a patient. We congratulate the offenders on this result; but there is the general public as well as private individual interests to be considered, and when speed limit rules are set aside the increased risk to the public usually outweighs the possible benefit to individual patients. The details of some of the cases as reported do not always furnish full assurance that the speed was necessitated by the actual nature of the case. It is difficult, for instance, to understand in what sort of case urgency can fairly be claimed when a medical man motors from London to Brighton to see a patient. Nor is it easy to understand how it can be thought worth while to traverse Hyde Park at 12 miles an hour instead of 10; the saving of time can at best be about a minute. Whether speed limits should everywhere be abolished, as some people hold, is another question, but so long as they are maintained unusually fast driving by a medical man is not a practice to be encouraged. The public always suffers more or less, and patients do not always gain, since a medical man is sometimes stopped. Indeed, the more urgent a case the more carefully should a medical man abstain from driving at a speed which, by attracting the attention of a policeman, may cause really serious delay. Motor drivers often seem to believe that once they have sounded their horn they have done everything due from a careful driver, and the responsibility for an accident will rest on the shoulders of those that may be in the way. Hooters, even those of a musical variety, add not a little to the wear and tear of nerve power to which everyone is nowadays subject, and are quite as often merely startling as usefully informing. If the habitual use of hooters in populous places were frowned on by the police there would be some chance of motor drivers recognizing that it is their duty to avoid accidents by careful driving instead of trusting to the agility of foot passengers.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Eight lines and under	0	4	0
Each additional line	0	0	6
A whole column	2	13	4
A page	8	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

Note.—It is against the rules of the Post Office to receive *postes Restante* letters addressed either in initials or numbers.